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Virginia Wildlife

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JUNE

Volume XXI / Number 6

IN THIS ISSUE **PAGE**

What is Ecology? 4
The Free-Running Dog 6
Multiple Use Management—How It Works On Your Natural Forests . . 8
What Salt Water Sport Fishing Means to Virginia 10
Conservationgram 13
The Thirteenth Annual Wildlife Essay Contest 14
Nuisance Bird Control 16
Complete Text of the Virginia Boating Safety Act 18
Arlington Girl Wins Wildlife Essay Contest Scholarship Award 20
Bird of the Month: The Yellow Warbler . . 22
The Drumming Log 23
Commission Field Force Notes 24
Youth Afield 26
Lake Nelson to be Opened to Public this Month 27
Fish Shelters 28

COVER: This colorful pond-bottom scene, drawn by Duane Raver of Cary, N. C., shows how black crappie and other game fish gather around brush, in this case deliberately-placed cedar trees. In the foreground, a male crappie chases two young redfin pickerel from its spawning site.

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EDITORIAL

The Senator Was Right

ONE of the great problems of modern America—and this we have pointed out many times on these pages—is how to preserve the natural landscape in the face of an ever spiralling human population and our relentless advance toward greater urbanized living and industrialization. Will America the Beautiful have any real meaning to us, both in song and in landscape, say in ten . . . twenty . . . forty years?

It is true that much that is spectacular and unusually scenic in America has already been set aside in a system of national parks and forests. The job ahead now seems one of safeguarding the less dramatic natural landscapes in our country—the smaller mountain regions and such wild places as native lakes, swamps, marshes, bogs, wooded glens, patches of desert and prairie, sand dunes and beach country. These, after all, make up in a quiet sort of way much that is typical and truly beautiful in America—bits of American heritage that must be saved and safeguarded or the land that we have grown to know and love so well will soon be little more than an empty shell. The big task ahead is to fill in the gaps between the existing parks and preserves while at the same time protecting from harm those areas already set aside.

The question can be raised, of course—and often is: Why the need of these secondary bits of wild country, and will it pay or profit us to preserve them?

One of the best answers to this query that we've heard came recently from state senator FitzGerald Bemiss of Richmond, who, when reflecting on this problem, said, "We need these areas for many good reasons but particularly we need them for the preservation of our own sanity."

The senator, we think, was right. We need parcels of wild country for the preservation of our sense of well-being, as well as for the highly personal values that they hold for us, and we need them for their wildlife values and for the educational, historical, scientific, and cultural values they hold. How are we to plan our future if we lack the proper yardstick by which to measure man's progress upon the earth? It seems obvious, then, that every unspoiled parcel of wild country saved or safeguarded in perpetuity, be it beach, marsh or swamp, glen, cove, or mountaintop, gives us some examples of the natural landscape to pass on to succeeding generations—living links to America's past. The more civilization spreads into the country, taking away the natural landscape and substituting an artificial one, the more precious and desirable will these living memorials become. What's more, the fewer the wild places that are left, the more valuable they will become, and, if acquired, the more value will they give the lands surrounding them. This has been true generally wherever parks and preserves have been established. Instead of the community losing a resource, it gains a valuable one.

We are living on borrowed time. Virginia and many other states have already lost many opportunities to preserve valuable wild lands. But if we act quickly, we can still save significant areas of our natural heritage. Interested individuals and groups can

(Continued on page 17)

LETTERS

Support A Conservation Organization

YOU have recognized in your April editorial our most pressing conservation problem of today: the need to save for ourselves, and our children, some remnants of the original natural splendor of America. With industrialization, urbanization, and population pressure in general, fast chopping away at what little decent wilderness is left, this need is even more urgent than the need to save individual species.

We will not meet this need if we only philosophize about it. We must take practical steps.

There are organizations working to preserve our natural areas. I would think the best way to bring substance to your desire to see our wilderness areas preserved would be to advise readers to support an organization which has a purpose to save primeval America. There are many such organizations: the Audubon Society, garden clubs, sportsmen's clubs—but one organization which stands out in such work is the Nature Conservancy, for its sole purpose is to buy up primitive areas to preserve them from despoilation. This organization has bought up bogs, prairies, seacoast, virgin forest tracts all over America, and is in the process of acquiring several more. Though these tracts are set aside to preserve Nature "as is," this should provide no conflict to the true sportsman. Preserving Nature for its own sake is no alien concept to the true professional wildlife manager. All wildlife managers of today have been largely trained by professional people who have loved Nature for its own sake, and some of that was bound to rub off.

The outlook is not completely dark. Not if we support those who are actually succeeding in saving something while others merely bemoan.

My membership (only $3 yearly) in the Nature Conservancy lapsed as result of moving, but, inspired by your editorial, I hastened to rejoin.

Leonard J. Uttal
Madison Heights, Virginia

A Mockingbird's Adaptation

I HAVE a bird feeding station in an apple tree close to my kitchen window. On March 3 when our town was covered with ice and snow, this is a picture I caught: My pet mocker, who has taken this tree as his permanent residence, was perched under the wide eaves of my roof on an ice and snow-covered twig drinking the drops from the slowly melting icicles fringed in front of him. His timing to catch each drop was miraculous to me. This is the first time I had seen such happen. This experience renewed my knowledge that birds need water as well as food in winter feeding.

Mrs. Thomas S. King
Bristol, Virginia

The Good Word

WOULD almost as soon part with my rod or gun as VIRGINIA WILDLIFE.

Lee DeArmond
Alexandria, Virginia

Photo by H. S. Mosby

Oaks in an oak-hickory "climax forest."

What Is Ecology?

By A. B. MASSEY
Virginia Cooperative Wildlife Research Unit
Virginia Polytechnic Institute

IN WILDLIFE and conservation writings and discussions, the term ecology is frequently used. Just what is ecology? When one speaks of the ecology of plants, animals, or an area, just what is implied?

The hunter looking for rabbits goes to an area of blackberry or honeysuckle thickets. He unconsciously is following the ecology of the rabbit. The thicket is a favorable environment; it offers protection from weather, enemies and a favorable place for nesting. Open areas near a thicket offer food. "Brer Bear" did not know rabbit ecology when he threw "Brer Rabbit" into the briar patch.

The dove hunter does not look for doves in an area of briar patches but goes into the open weedy field. The fisherman out for rainbow trout looks for water holes below rapids in swift-running cold water streams. The forester selecting the site to plant a certain species considers the soil composition, its water relation, exposure, the character of the prevailing vegetation and animal life. The gardener learns that rhododendrons must be planted shallowly in lime free soil and roots kept cool and moist by mulching. If one wants song birds around the home, there must be trees and shrubbery offering food, nesting sites and shelter. Potted plants in the home must have fertile soil, favorable light, temperature, water and be protected from parasitic plants and animals. And so in our efforts to favor plants and animals and to study them in the out-of-doors, we follow ecology without realizing it.

The term ecology may be defined as the interrelation of plants and animals among themselves and each other and with the environment. Ecology is not *a* science but a science complex. In its completeness, it involves a full knowledge of botany, zoology, climatology, meteorology, geology, biogeography, soil science (pedology), energetics, and often higher mathematics.

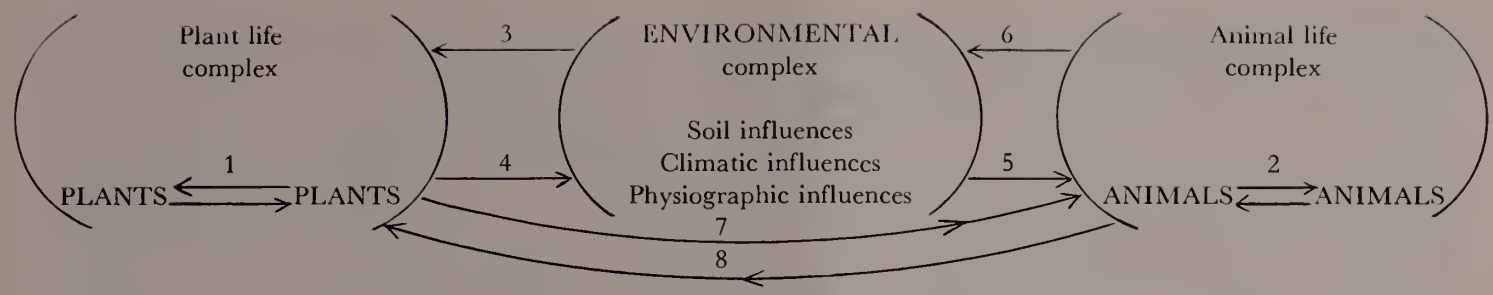
Plants and animals reproduce, feed, and develop when associated with certain plant, animal, and environmental influences. The limey soil favorable to barberry is not tolerated by rhododendron. Hickory trees are more abundant in wooded areas frequented by squirrels, which distribute the nuts, than in woodlands which squirrels do not frequent because of unfavorable food, nesting site or the pressure of enemies.

An area conspicuously occupied by a species of plant or plant type or which has some prominent physical feature is an ecological community. Thus we find white oak communities, broom sedge communities, swamp communities, pond (or aquatic) communities, etc. Each community is an "ecosystem" having plant, animal, and environmental influences. Plants and physical features are not mobile as are animals, and are more apparent; hence communities are not recognized on the basis of animal life, although each kind of community has its typical animal life.

The complexity of a community and the definition of ecology given above are diagramatically illustrated on page five.

Communities which are not disturbed undergo changes as the years pass, ultimately becoming dominated by oaks and hickories. This community constitutes the highest life form of plant life over Virginia and is the climax forest. Our pine forests are forerunners of ultimate broadleaf forests dominated by oaks, hence a pine community is preclimax.

A field which has become non-productive and is totally abandoned by man undergoes a succession of changes in plant and animal life. The first year the field is overgrown with annual weeds and grasses. In succeeding years the annuals are crowded out by perennial weeds. Gradually broomsedge commonly invades the field and by virtue of its dense growth may occupy the area for a period of years to the detriment of woody plants introduced by seed or other means. Eventually, however, the situation becomes less favorable to broomsedge and such woody plants as pines, sumac, persimmon, black locust, blackberry and others may appear. The pines increase and eventually dominate the areas, developing a pine community which occupies the area for a period of years. Finally



Three Major Influences Interacting In All Ecological Communities—An Ecosystem

1. Plants compete for food, water, light, space, etc.
2. Animals compete for food, water, territory, etc.
3. Environment influences plant life.
4. Plant life influences environment.
5. Environment influences animal life.
6. Animals influence environment.
7. Plants influence animal life.
8. Animals influence plant life.

broadleaf trees invade the pine community and ultimately dominate, the area becoming a community of broadleaf trees. As years pass, the broadleaf community becomes dominated by the climax oaks and hickories.

In the central prairie states where the annual rainfall is much lower than that in the east, the climax is grass, this being the highest life form which develops under the Midwest climate.

Ecological succession of communities developing over an area which has been cleared and cultivated, a clear-cut forest or a forest destroyed by fire, is known as secondary succession. This secondary succession is common over the state; however, the species of plants dominating the communities may vary under the influence of different environmental factors. In areas where limestone or marl is near the soil surface, red cedars invade the grass and perennial weed stage and become dominant. In time the cedars are followed by broadleaf trees or, in certain soil types, pine may invade the red cedar. Succession continues until ultimately the oak-hickory climax develops.

Commission Photo by Kesteloo

Plant life, animal life, and environment, closely associated, make up an "ecological community."

Animal succession accompanies plant succession. As communities change, there is a change in the animal life. The weedy field attracts bobwhite, doves, cottontail rabbits and rodents which in turn attract foxes, hawks, and owls. As the succession advances into the woody plant stage, the ruffed grouse, wild turkey, and deer are more prevalent. In the oak-hickory climax occur the wild turkey, deer, raccoon, squirrel, bear, and others.

Fire and clean cutting reduce succession to a point where it has to start again. Clean cutting does not set back the succession as strongly as does a wild forest fire. In areas which have been denuded by erosion, land slides or grading and left with no further disturbance by man, a succession of plant communities develops similar to that described above. There is a natural tendency for all bare areas to become vegetated. A weedy field, lichen on bed rock or a pine woodland are natural steps leading to the deciduous forest climax. As the plant complex, the animal complex or the environmental complex change, so do the vegetation features, which in turn influence the animal life.

In ponds which are left largely to nature, little disturbed by man or domestic stock, a typical succession develops. The deeper water contains a suspension of minute plants and animals, the plankton. Passing shoreward as the depth of the water decreases, a zone of coarser submerged plants, the pondweeds, develop. Following these shoreward, a zone of water lilies, then a zone of emergent sedges occur. Shoreward of these is a zone of cattails. In the shallower water and wet shore develop woody plants, especially alders and shrubby willows. Back from the shore, but where ground water is near the surface, occur the sycamore, willow trees and others. As the years pass, silt and plant debris accumulate, the pond becomes shallower, plants of each zone appear inward invading the adjacent zone. In later years this former pond becomes a swamp of alders, willows, and other swamp plants. In future years, if left to ecological processes, a typical soil develops and the former pond site supports a stand of broadleaf trees.

On bare exposed rock, a typical succession develops starting with lichens, followed by mosses and on through a succession of life forms.

As previously stated, an animal succession develops along with plant succession. A population of a given species

(Continued on page 12)

Virginia State Chamber of Commerce Photo

Dogs which survive after being abandoned in the wild become unnatural, introduced predators on wildlife.

The Free-Running Dog

By ROBERT H. GILES, JR.
Former District Game Biologist

ONE of the knottiest problems facing wildlife management in Virginia is the case of the free-running dog. Man's best friend is a touchy subject to many people but one that must be examined in its true perspective. Fireside companion or friend afield, the dog plays a very important and valuable part in all of our lives. The literature of conservation is full of statements of dogs' worth in retrieving game that would otherwise be lost, recovering cripples, increasing game harvest by aiding in the hunt, and even service in game census and research work. For these dogs, too much praise can hardly be given.

It is the "other fellow's dog" with which we are concerned. This is the dog that is controlled only by the rattle of the food pan; the dog that is a Dr. Jekyll by day, Mr. Hyde by night; the dog that has been released in the woods to fend for itself; and the "good" dog that has taken up with "bad company." These are the free-runners, scourge of Virginia's fields and forests.

Such dogs were early recognized as a serious detriment to our game supply. Virginia game and fish law enforcement have concerned themselves with dog control since 1916. Only recently have most counties divorced dog control work from the warden, assigned it to other personnel, and allowed full-time conservation activities by wardens.

Merciful?

Sentiment runs high against the humane disposal of dogs. Instead, people with a surplus litter of not-too-well-bred dogs frequently return them to nature. "Turn them loose and they will find a home" is the thought as the door slams and the car roars off down the back road leaving behind—bewildered, cold, lost, and without food and water—a dog that has never been an hour away from a bag of dog food. People who can commit such an act have no pangs of conscience. The dog must learn in two days what the creatures of the wild require months to learn. Frequently they fail. With failure comes protruding ribs, swollen eyes, severe insect infestations, scaly and dry skin, ice and rock cut paws, and finally starvation. Subjecting an animal to such a fate cannot be deemed merciful in any sense of the word.

Those dogs that adapt themselves to their new environment and survive are the threat to wildlife. These are truly wild dogs and become unnatural, introduced predators on wildlife which previously lived in a state of balance with natural predators. Over 40,000 dogs are disposed of each year by Virginia wardens in the field. Many of this number were dogs gone wild. Their potential impact on wildlife numbers is immense.

Dogs and Deer

Niel W. Hosley, in *The Deer of North America*, reports that "probably the most serious predator over much of the best deer country is the domestic dog." Field observations by the writer and his associates bear this out. In areas where public support and effective controls have eliminated the dog problem, deer thrive on good range. In many of Virginia's counties where public support is lacking and

dog control very difficult, deer populations are static even on ideal range.

In a *Journal of Wildlife Management* paper on deer range conditions[1] Arthur Einarsen is quoted as reporting that some Oregon deer must feed 10 to 12 hours per day in summer to maintain health and twice this amount of time in January. These figures must hold true on many of the poorer Virginia deer ranges. The browsing time required is due to the need for five percent crude protein in the diet. Below this starvation may occur. Deer spending several hours a day eluding dogs could easily fail to gain their protein requirements and reproduction could be cut even if starvation did not occur.

Deer appear to be inherently afraid of dogs. Fawns are reported to evidence fear of dogs at three or four days. Any dog will give chase to a deer, though many well-trained bird and bear hunting dogs will not track deer. Dogs seem to run deer "just for the fun of it" for many soon lose interest in the chase without becoming overly physically tired. Many dogs of "lap" size could not do immediate physical damage to a healthy deer even if they overtook it, still the losses suffered from such dogs probably far outweigh the kills made by larger dogs. The insidious damage to deer by the small dog is felt through shortening of required feeding time, exhausting does during late pregnancy, driving heated deer into icy waters causing severe shock and, on at least one known occasion in Alleghany County, causing a respiratory disorder that resulted in death. Frightened deer become cut or severely entangled by agricultural fences, are crippled by falls or sharp blows to the legs, rush onto highways and are killed, and are killed by sheer exhaustion. In 1956 a *post mortem* examination of a deer found in a Montgomery County streambed revealed death from exhaustion and shock. Dr. H. S. Mosby reports that over 20 deer were killed before dogs on a Giles County sanctuary wire in the early 1950's.

Studies in Ohio by Chapman indicated that 15 percent of the dead deer found were killed by dogs. Hounds, German shepherds, and Airedales were the most destructive breeds. "Fox hunting dogs" were reported to kill many deer.

Snow hinders deer escape, brings on fatigue more rapidly, and makes trailing easier for the dogs. In a 1948 report by Hamilton, a thousand snow-bound deer were estimated to have been killed by dogs in New York. Though Virginia does not get much snow, the mountainous regions receive an amount sufficient to compound the problems of dogs versus deer.

Dogs as Predators

Every predator has a beneficial function in destroying weak, diseased, crippled, and surplus animals. This "sanitary" predation is a double-edged sword, for since the extinction of the cougar in Virginia, the deer has had few natural predators. Fortunately, in most areas of the state hunting has, in part, filled this void. Under biologically sound hunting regulations, the deer can be kept within the limits of the ability of the range to support them. We do not yet need the dog as a predator to control our deer herd! Nor do we need a predator that takes the weak fawn or pregnant doe. In too many areas where increased herds would be desirable, the dog is the immediate limiting factor.

Dogs, Rabies, and Wildlife

One of the principles underlying a rabies control program is to eliminate a large percent of the wide ranging animals (*e.g.* the fox) to decrease the chances of an infected animal spreading the dread disease over a large area. The domestic dog gone wild is wide-ranging, is large enough to attack all animals, is an ideal disease reservoir, even if diseased can approach humans without causing alarm, and can cover much territory in a short time spreading rabies wherever it goes. Without a comprehensive approach to rabies control including the vaccination of domestic animals, the control of wild animal carriers, and control of free-running dogs, this threat cannot be handled. The place of the feral dog in the spread of rabies must be realized and dealt with realistically.

Dogs and Small Game

Small game and song birds are the frequent prey of the wild dog though their loss is not as spectacular as a gory deer kill. H. S. Mosby, in *The Wild Turkey in Virginia*, cites nest losses, kills, and disturbance of turkeys by self-hunting dogs. *The Ruffed Grouse* by Gardiner Bump and others cites the dog as a predator of grouse. Rabbits fall frequent prey to the four-legged hunter. Where dogs are abundant their small game kills, without question, amount to millions of individuals in Virginia alone.

How can the destruction caused by the free-running, self-hunting, wild dog be eliminated? First, a get-tough attitude must be exhibited toward the sentimentalist who thinks the dog can do no wrong. Public support must be gained by local educational programs, under state coordination, pointing out the damages and the dangers to humans and livestock and the threat to present and future hunting. Forceful rabies vaccination programs must be waged. Proper disposal of unwanted dogs must be encouraged and public provisions made for this service. Every-dog licensing must be sought. Leash and penning laws should be activated during wildlife nesting periods. A vigorous, year-around control program must be waged to eliminate the wild and free-running dogs and dogs of people who will not cooperate in such a sorely needed program.

Love of dog must be weighed against pleasure of hunting, plaintive bleat of the driven spotted fawn, starving young rabbits in the nest, unhatched partially incubated eggs, exhaustion of the pregnant doe, and water-fear of the crazed dog as it drools rabies-ridden saliva on every victim —animal and man. Sentiment must be matched not only with the realistic picture of an unnatural predator and its effect on our wildlife and its potential disease influence, but also with counter-sentiment that will reach all the people to solve a problem that affects everyone.

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1 Smith, F. N., K. C. Beeson, and W. E. Price. 1956. Chemical composition of herbage browsed by deer in two wildlife management areas. Jour. Wildl. Mgmt. 20(4):359-367.

MULTIPLE USE MANAGEMENT

How It Works On Your National Forests

By JACK HICKS, *Resource Management Assistant*
George Washington National Forest

"MULTIPLE use management" is much discussed today. From the publicity it is getting one might be led to believe that here is something brand new in conservation circles, perhaps a byproduct of the "space age." Actually, multiple use management is at least as old as the United States Forest Service.

On February 1, 1905, the Honorable James Wilson, Secretary of Agriculture for the United States, wrote a letter of instruction to Gifford Pinchot, his chief forester. In that letter he notified Mr. Pinchot that the Forest Reserves were being transferred from the Department of Interior to the Department of Agriculture.

One part of that letter has been quoted again and again. It is the passage in which Secretary Wilson was speaking of reconciling conflicting interests. His words were "where conflicting interests must be reconciled, the question will always be decided from the standpoint of the greatest good of the greatest number in the long run." This statement of policy, made very early in the life of the Forest Service, has been a clear guidepost during its growth and development through the years.

Conflicts were frequent in the days of Pinchot and Wilson. The public domain, a virgin wilderness rich in timber, grass, water, and minerals, had offered limitless promise to a parade of land-grabbers as well as to the legitimate homesteaders. The plunderers considered the establishment of these new Forest Reserves an infringement on their rights and privileges. They were both loud and active in their opposition. Cattlemen wanted the open range. Clashes with homesteaders were frequent and usually bloody. Timbermen wanted the best of the timber and at their own price, which was often little or nothing. Mining interests patented huge holdings of valuable timber land, with no restrictions as to how they were to treat the land surface while they sought the minerals beneath.

The conflict flared into national warfare with the famous Pinchot-Ballinger feud. Certain public lands in Wyoming and Montana had been set aside by President Theodore Roosevelt in the interest of conservation and were placed under the custody of the Department of Interior. Soon after William Howard Taft became president, these lands were made available for purchase by private interests for exploitation. Chief Pinchot charged that the Department of Interior and, particularly, Interior Secretary Richard Ballinger had abandoned the policy of conservation of our natural resources and was helping big business at the expense of the American public. President Taft upheld his Secretary of the Interior and Pinchot was dismissed from his position as Chief Forester. Nevertheless, the support given Mr. Pinchot by conservationists during this controversy indicated that, more and more, America was awakening to the need to guard her natural resources. We have come a long way since 1910, but the special interest groups are still with us.

I like to think that the principle of multiple use management for our national forests was conceived when Secretary Wilson wrote those words to Gifford Pinchot. Certainly that is what the concept of multiple use, applied to the management of our national forests, seeks to achieve—the greatest good of the greatest number in the long run.

Elsewhere in his memorable letter Secretary Wilson speaks of "conservative use" of the natural resources. Note that he says "use," not "preservation." These resources—the wood, the water, the wildlife, the forage, the minerals—are to be used, but used wisely and for the benefit of the public that owns them. These uses are many and varied. They include the production of lumber and pulpwood, water for power, irrigation, industry and home consumption, game and fish for sport, grass for domestic livestock, and minerals for domestic expansion. They provide forest solitude for the camper, the hiker, and the picnicker. Some of these uses are compatible; some are not.

I would like to tell you how the multiple use concept is applied on the George Washington National Forest in Virginia. A multiple use management plan has been written for the forest as a whole. It describes the land area, recognized uses, possible sources of conflict between uses, and opportunities for maximum use. It gives a generalized picture of the multiple use program. Each of the seven

U. S. Forest Service Photo

Swimmers enjoy the beach and lake at High Knob Recreation Area on the Jefferson National Forest in Virginia.

ranger districts has its own plan, giving details that apply particularly to the individual working unit. On the wall in each ranger office hangs an administrative map covered with a transparent overlay. On the overlay the ranger marks with colored pencil those areas that are, potentially, sources of conflict, places where caution must be exercised to correlate uses so that "the greatest good of the greatest number in the long run" will result. This map is a real working tool for the ranger. He will frequently turn to this map for guidance in making a management decision and he will keep it posted currently as new situations arise. A new ranger finds it an invaluable reference in a territory new and strange to him.

Let me show you how multiple use works in practice. Here is a 10,000-acre drainage. The stream that flows through the area provides a water supply for a nearby city. There is a dam and reservoir at the lower end. Clearly, it is most important that this drainage be managed and protected so as to insure a continuous supply of useable water for the city that depends upon it.

There are, however, other uses that can and should be made of this large area. A selective harvest of the mature timber, properly supervised, will produce revenue and may even increase water yield by reducing the number of large tree stems that have been soaking up rainfall before it reaches the stream. Special safeguards will be exercised in the logging operations to prevent soil erosion. Logging debris will not be permitted in the live stream bed.

The area is good for hunting and trout fishing. These uses are entirely compatible with the use of the drainage for water and for timber products. Timber-cutting will cause hardwood sprouting that makes the browse needed for a deer herd. Openings created by the cutting will give "edge" conditions beneficial for grouse and turkey propagation. The marking rules will specify leaving enough mast, den, and roost trees on every acre so that food and shelter for all species of game will be assured. Leaving a protective strip of trees uncut along the stream banks will give the necessary shade for the trout brook. The building of logging spur roads will provide easier access for stocking the stream in springtime.

U. S. Forest Service Photo

Timber, shown being trucked off of a national forest in Idaho, is harvested on a sustained yield basis on our national forests.

The main road traversing the area may be a favorite drive for sightseers and tourists. Within a protective strip on either side of this road timber cutting will be restricted to salvage of windfalls or dead and dying trees, with careful cleanup, to retain the natural beauty of the forest. Camp sites and picnicking spots installed within easy access of the route of travel will encourage still another use of the forest. With proper sanitary precautions, this recreational use is completely compatible with all the rest. The reservoir itself can be used for fishing providing the proper controls are exercised.

And so we have a block of forest land not restricted to a single use but having many uses to be enjoyed by the public. The dominant use—water—forms the hub, but around it and coordinated with it are a number of secondary uses forming the spokes of the wheel.

Elsewhere, we find a 2,000-acre virgin area of white pine and hemlock. It is unique today because very little of this type of land remains. Such an area has value for scientific study. It is a retreat for nature lovers who want to enjoy an environment unaffected by man's influence. Hunters and fishermen use the area for their favorite sports. Here we still practice multiple use, although more limited in scope than in the first example. Our aim is to preserve the virgin conditions yet permitting all types of use that are compatible with the maintenance of a primitive environment.

In still a third watershed, prospectors have found oil and gas deposits. No municipality depends upon the area for its water supply. Here we will allow drilling for the sub-surface resources, subject to the necessary restrictions to prevent pollution of streams. Timbering, hunting, fishing, camping, and picnicking are all compatible uses to be made of the land surface at the same time.

Using the multiple use approach, a ranger scrutinizes his district carefully. Areas that must, from their very nature, be relegated to a limited number of uses—I speak of such unique natural features as an unusually fine scenic overlook or a beautiful waterfall—will be examined from all angles. Such dedicated spots will be relatively few in number and definitely limited to actual area needed to properly enjoy the use.

New York State Conservation Commissioner Harold Wilm, in a recent talk before the American Forestry Association, described multiple use in terms of the common equation. On one side of the equation are grouped the various uses to be made of the forest resources; on the other, the greatest national benefit, or, as Wilson expressed it, the greatest good of the greatest number in the long run. Those uses that are compatible for a particular area are added together. Those that detract, the "minus" quantities, are eliminated. The equation will vary from place to place. It often taxes the resource manager to make his decisions as to the proper factors to put in his equations.

(Continued on page 17)

Virginia Salt Water Sport Fishing Association Photo

Not until 1956, when Claude Rogers of Virginia Beach turned the trick, had a tarpon been taken on rod and reel in Virginia. Last year seven, including this 53-pound specimen landed by George Killmon of Wachapreague, were boated off Virginia's Eastern Shore.

What Salt Water Sport Fishing Means To Virginia

By MELVIN L. SHREVES
Member of the Virginia House of Delegates
Bloxom, Virginia

IN the writings of early Virginia colonists there are reports of Indians of the Chesapeake Bay area who indulged in lassoing sturgeon as a form of tribal sport. Reading this, it is easy to visualize these gleeful redskins skimming joyfully over the waves of the Chesapeake in hot pursuit of the elusive sturgeon, while on the shore irate wives with fretful papooses fume for the return of their errant spouses. This irresistible call of the beautiful waterfront scenery and huge variety of bays, rivers, creeks, and inlets that are typical of Tidewater Virginia has persisted in the ears of its male inhabitants down through the ages, but today's sport fisherman goes after many other gamefish with gear far different from the redskin's lasso, and his wife is perhaps a bit more tolerant of a secondary place in her husband's affections when the fish are running. The statement "He's gone fishing" explains a man's absence from home or business with the same finality as if he had been summoned away by a supernatural force. Indeed, some claim that it was in Tidewater Virginia the old maxim originated that since the Good Lord made the earth one part land and three parts water, He surely meant that man should plow one day and fish three.

What has lured both red and white settlers away from home and work over the centuries in Tidewater Virginia is now being considered as the making of a major industry there—a giant salt water sport fishing tourist trade. The prime requisites for such a trade have been apparent in Tidewater for some years, and now, spurred by the soaring interest in boating and sport fishing manifested all over America in the last 10 years, forces have begun to work toward capitalizing on Virginia's fortunate geographical location and inherent natural resources in this field.

Of course, the sport fisherman goes where there are gamefish—and these are plentiful in Tidewater. Marine scientists have found over 500 species in Virginia's salt waters, although a relative few only are popularly sought after by today's sport fisherman. The list includes white marlin, black drum, cobia, channel bass, dolphin, striped bass, bluefish, flounder, tautog, sea bass, tuna, gray trout, spotted sea trout, croaker, spot, and white perch. The current world's record catches of three of this group (cobia, 102 pounds; black drum, 94½ pounds; channel bass, 87 pounds, were made in Virginia waters, according to the records of the International Gamefish Association.

Future research into the techniques of hooking many of the other gamefish inhabiting Virginia's waters is expected to aid in promoting salt water sport fishing there. Such a development has already taken place in regard to tarpon. For many years huge schools of this valuable gamefish, which is a favorite target of Florida's sport fishermen, had been observed in the waters off Virginia's Eastern Shore, but no angler had ever succeeded in hooking one there. In 1956, however, Claude Rogers of Virginia Beach, a well-known angler who later became executive secretary of the present Salt Water Sport Fishing Association of Virginia, after some painstaking research and study of tarpon habits, came home with the first tarpon ever to be caught on rod and reel in Virginia waters. This has led many other anglers to have a try at tarpon here, and in time this phase of Virginia sport fishing is expected to

achieve great popularity.

A major part in the campaign to encourage the growth of sport fishing in Tidewater Virginia has been played by the Salt Water Sport Fishing Association. Formed in April, 1957, the Association has set up its headquarters at Virginia Beach to coordinate the promotional efforts of five regional staffs encompassing the entire Tidewater area. Its major activity has been the sponsoring of an annual tournament featuring the award of 15 silver trophies for prize catches and citation plaques for catches above certain minimum poundage. Two such tournaments have already been held. The 1958 contest resulted in over 500 awards to anglers hailing from 11 states and the Dominion of Canada. The 1959 contest saw more than 1,200 awards to people from 17 states and Canada. While no formal survey of Tidewater's party boat captains and fishing pier operators has been made to indicate the exact economic gain from its efforts to date, the Association has taken random samplings of their experience which indicate a gratifying increase has occurred.

Here it is well to note that the type of revenue the Association is seeking to stimulate is what is called "clean dollars," or income for which a community need not consider outlays for added schools, roads, sewerage, or other public facilities to cope with a population increase following an industrial development, for instance. The typical sport fisherman comes briefly into a community, spends fairly lavishly, and departs leaving about three dollars in incidental, indirect purchases in non-fishing establishments along with every dollar he spends directly in pursuit of his pleasure.

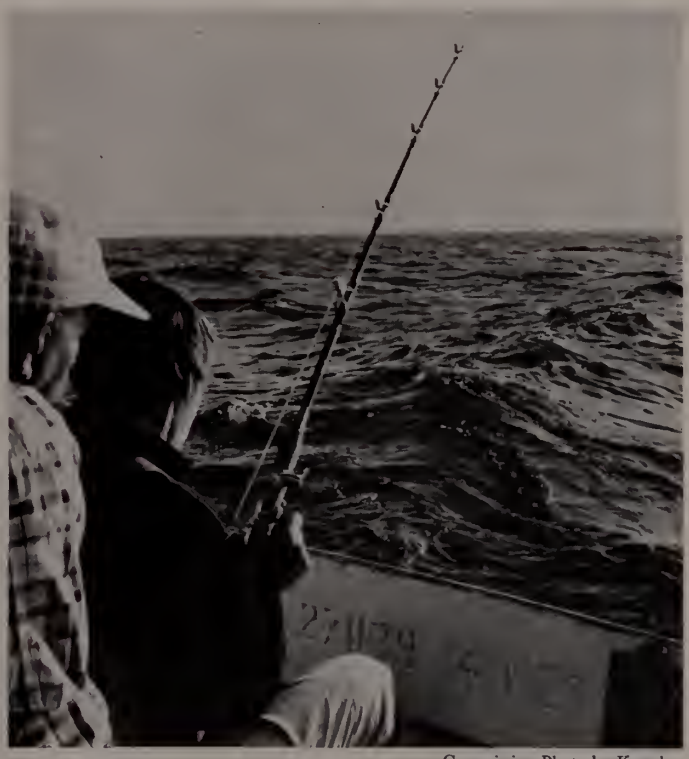
A United States Fish and Wildlife Bureau survey reported that in 1957 twenty-five million people went fishing in this country, spending almost 3 billion dollars, or an average of $114.42 per person. This is some indication of the lucrative market in which the Salt Water Sport Fishing Association is seeking better penetration for Virginia. It feels that it has merely begun to scratch the surface of a rich vein of revenue which in years to come will rival any now on hand in Tidewater.

As president of the Association, perhaps my hardest task is to convince people of the limitless potential of economic benefit for a community having the natural resources conducive to the development of a sport fishing trade. As an eye-opener, I like to quote from an extensive survey made by the State of Florida to determine the economic value of its fishing industry. This survey showed total income to Florida from sport fishing during 1956 to be 468 million dollars! This was compared with four other major industries: lumber products, $75 million; minerals, $25 million; fruits and vegetables, $250 million; and cattle, $115 million. It is readily seen that sport fishing revenue far exceeded that of each other major industry, and even exceeded their combined group total by 3 million dollars!

Now this great Florida sport fishing trade did not, like Topsy, jes' grow—a lot of long, hard work over two decades brought it to its present stage. The metropolitan Miami Fishing Tournament, a key factor in the development, began in 1937 with a very modest budget and only 40 party boats. In its first contest it registered a mere 2,000 anglers. By 1957, however, it had grown to 1,000 party boats and almost 2,500,000 anglers participated, the majority being out-of-state residents.

That Virginia has a great potential for sports fishing development has been recognized by no less an authority than Mr. George Robey, director of the Miami Tournament described above. He is said to envy Virginia's location within a day's drive of 45 million Americans, as against Florida's remoteness and dependence upon tourists who must travel long distances to visit the state. This results in the limitation of Florida's tournaments to the winter months, whereas Virginia's fishing seasons are almost year-long.

While the Salt Water Sport Fishing Association of Virginia has its biggest guns trained on a target of economic development, it is nonetheless interested in and aware of consideration of the protection, preservation and conservation of the Commonwealth's valuable fish and wildlife resources. As a matter of fact, it was through Association contacts that I learned of the threat to channel bass fishing posed by the declining number of the larger specimens of this fish in our waters. It seems that only when a channel bass has reached a certain size is it biologically capable of procreating itself. In the last General Assembly I therefore introduced and gained the passage of a bill limiting the capture of channel bass over 32 inches long to two per person per day. In all our publications we stress good fishing manners and a sensible limitation of catches so that natural replenishment processes can remain undisturbed and insure good fishing in Virginia waters for many years to come. We well realize that turning ever increasing numbers of anglers loose in our waters without some instruction as to their responsibilities and without



Commission Photo by Kesteloo

Fishing for marlin in the Gulf Stream off Virginia's coast is becoming more popular every year.

Commission Photo by Kesteloo

Virginia is famous for its block drum fishing.

adequate regulation of their catches is sheer folly.

Another concern of the Association is for the preservation of a good portion of the virgin terrain of Tidewater Virginia in its present natural state. This is in keeping with the Association's philosophy toward its potential sociological role in helping to shape the mode of life of an enlarged population that is due to follow the current trend toward industrialization in Tidewater. The Association is actively advocating and encouraging the selection of certain desirable waterfront tracts and offshore islands to be earmarked for non-commercial use. Such a program can never be instituted too early—it is often begun too late. While heartily welcoming new industry to Tidewater, the Association desires to help blend the resulting influx of new peoples and new ideas with the traditional Virginia way of life in a Virginia setting, hoping thereby to avoid the ugliness and chaos that can result when commercial interests are given free rein to despoil an area of natural charm and character.

This program may prove enticing to certain select industries which are known to be seeking relocation in orderly, progressive communities. Enlightened management is aware that productivity goes up when personnel have abundant recreational facilities available for off-time rest and healthful relaxation. The Association may be proud of the help it can give in supplying means for the spare time enjoyment of workers who today have an abundance of leisure hours unknown to their forefathers.

Tidewater Virginia is determined that very soon throughout America the name of Virginia will be associated not only with fine people and good government, but also with superlative sport fishing. The Salt Water Sport Fishing Association of Virginia is determined to make Tidewater a veritable Mecca for the faithful followers of sport fishing throughout America. In the words of Shakespeare: " 'Tis a consummation devoutly to be wished."

Commission Photo by Cutler

Author Shreves, as president of the Salt Water Sport Fishing Association, addresses the winners of the 1958 tournament at Old Point Comfort's Chamberlain Hotel. The 15 silver trophies are shown on the speaker's table.

WHAT IS ECOLOGY? (Continued from page 5)

will be maintained in an area so long as the stage of plant succession favorable to it persists. The Indians learned that by burning areas they would have more game of certain desired species. When an area is burned, the succession is set back. Today we are opposed to burning except under special conditions of atmospheric and soil moisture, when the fire can be controlled as a cool surface fire. Wildlife biologists and game managers follow practices other than burning to hold the succession in the stage favorable to the desired animal species. The pond manager follows practices to promote plankton development and prevent the development of other stages of pond succession. On the other hand, the muskrat trapper is interested in the growth of plants in wet marshes and emergent plants along the shores of streams and ponds.

Secondary succession described above is common in Virginia; however, variations in soil and other environmental influences cause variation in the plant species.

Where a species is dominant over an area, the indications are that plant, environmental, and animal influences are

Photo by A. B. Massey

The advent of red cedar, the pioneer woody plant in thin soil over limestone base rock, illustrates secondary succession in an old field.

favorable to it. In Virginia, soil and exposure have marked influence. In pioneer days when the white men were clearing forests for farming, they soon learned that white oak land was more fertile and had better water relations than land dominated by blackjack oak and post oak. The soil of the latter is infertile and in poor physical condition. Thus when one knows the ecology of a plant species and finds it dominant or even codominant, the local climate (microclimate), soil and other influences are revealed. Thus plant communities are ecological indicators. In the Alleghanies the development of red cedars as the first (pioneer) woody plant in old field, or neglected pasture, the

(Concluded on page 21)

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

TWO FISH DIVISION MEN KILLED IN AUTO ACCIDENT. Two employees of the fish division of the Virginia Commission of Game and Inland Fisheries died last month in Duke University Hospital at Durham, N. C. of injuries received in an automobile accident in Halifax County on April 27. Two other commission employees received minor injuries in the same accident.

Orson Gillespie, 37, of Buckingham, fish management aide with the commission since 1953, was at the wheel of the commission panel truck when it left the highway (Route No. 796 between the Staunton River and Route No. 360) at 5:45 p.m. and struck a tree. Suffering a fractured skull, a broken neck, and other injuries, he died on May 1 in Durham. Funeral services were held May 4 at the Enon Baptist Church in Buckingham, with burial there. He served his country in the merchant marine during World War II and in the army infantry in Korea. He is survived by his brother, Carol Gillespie, of Buckingham, Va.

Nathaniel Robert Bowman, III, 33, of Lynchburg, district fish biologist with the commission since 1955 and in charge of its striped bass investigations, sustained a severe skull fracture. Taken immediately to Duke Hospital in Durham, he passed away there on May 5. Funeral services were conducted at St. Paul's Episcopal Church in Lynchburg on May 7, with burial at Spring Hill Cemetery in Lynchburg.

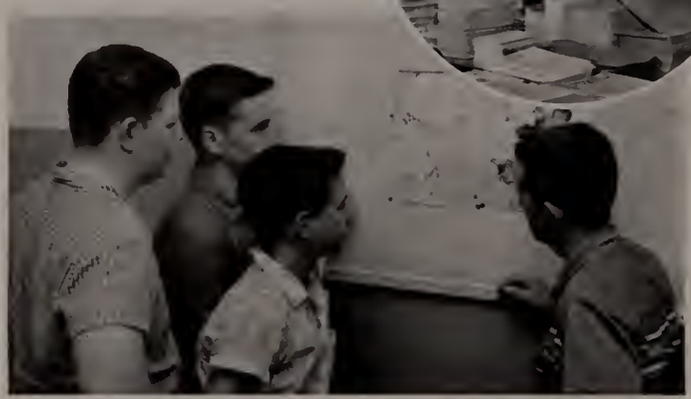
Bowman held B.S. and M.S. degrees in forestry and wildlife conservation from Virginia Polytechnic Institute. Before joining the Virginia commission in 1955, he worked in oyster and shrimp research at Bears Bluff Laboratory, Wadmalaw, S. C., and in game fish research at the Fish and Wildlife Service Laboratory in Beaufort, N. C. He is survived by his wife, Mrs. Margaret C. Bowman; two sons aged 6 and 4 and a daughter aged four months, and his mother, Mrs. Clayton M. Bowman of Lynchburg.

Hospitalized for several weeks with a broken elbow and a broken ankle was Halifax County game warden Ralph E. Austin. Robert G. Martin, fish division assistant chief, escaped with broken ribs and a lacerated elbow. The four men had just finished collecting striped bass eggs from the Staunton River. Biologists Jack Sheridan and Robert Wollitz were called in to continue the striped bass investigation. "Nat" Bowman had been heading up this project, which had received national attention because it was the first intensive spawning investigation of landlocked striped bass.

BRANDBORG JOINS WILDERNESS SOCIETY STAFF. Stewart M. Brandborg, assistant conservation director of the National Wildlife Federation, has resigned to accept a newly created position as special projects director of The Wilderness Society. He will work out of the Society's Washington office. During the six years that he was with the Federation, Brandborg's duties entailed the planning and promotion of the annual National Wildlife Week campaigns and participation in the organization's conservation education programs. He also was assistant editor of the Conservation Report legislative service for national groups. In his new post with The Wilderness Society, Brandborg will assist in developing program and educational materials and will help promote the organization of state wilderness committees. A native of Idaho, Brandborg holds B.S. and M.S. degrees in wildlife management and forestry from the Universities of Montana and Idaho.

MORE THAN 250,000 SEABIRDS DIED in oil slicks off Newfoundland and New England this past winter. United States representatives helped draft an "International Convention for the Control of Oil Pollution of the High Seas" at a London conference in 1954. Canada and a dozen other nations have joined but the United States, six years later, has never ratified the treaty. In a letter to Chairman J. W. Fullbright of the Senate Foreign Relations Committee, Carl W. Buchheister, president of the National Audubon Society, has urged early Committee consideration of the 1954 Convention and a report favorable to ratification by the Senate.

Florence Blankenship of the game commission, Reynolds Harnsberger of the Izaak Walton League, and Franklin Kizer of the Department of Education met to set contest dates and subject. Reference materials were sent to schools by commission personnel.



Students at Middle River High School of Weyers Cave read the announcement of the 13th Annual Wildlife Essay Contest.

Governor J. Lindsay Almond, Jr. relaxed with winners following the awa
Quantico Post School, Prince William County, 9th Grade; Cynthia Weyland,
High School, Floyd County, 11th Grade; Margaret Diane Little, Wakefield H
Shreckhise, Middle River High School, Augusta County, 8th Grade; Gre
Quwin Quesenberry, Jr., G. H. Reid School, Chesterfield County, 5th Grad
Benfer, Jr., McIntire Elementar

Game Warden H. I. Todd and vocational agriculture teacher O. Beverley Roller generated enthusiasm in the contest by encouraging Middle River High School students to participate.

Jerry C. Shreckhise, an eighth grader at Middle River High School, decided to enter the contest. He did the necessary research for his wildlife essay in his school library.

Mrs. George Shreckhise watched her son put the finishing touches on his essay, which was entitled "How Wildlife Benefits From the Wise Use of Soil, Forests, and Water."

From Start to Finish . . .

The 13th Annual W

Text and Photo

The annual wildlife essay contest is "a long row to hoe" from its organization and announcement in late summer to the awards luncheon the following spring. Last July, representatives of the Commission of Game and Inland Fisheries, the Virginia Division of the Izaak Walton League of America and the Virginia State Department of Education met at the game commission's office in Richmond to get the 13th Annual Wildlife Essay Contest underway. The group agreed on the title, rules, prizes, dates and deadlines.

Soon after school began in the fall, principals received a notice of the contest and were urged to register their schools in the event. During the months that followed, teachers, game wardens, parents, and

Teacher O. Beverley Roller and Middle River High School Principal C. Kenneth Landes packaged the school's essays to be sent to the game commission in Richmond for judging.

:many in the Senate Chamber April 29. Left to right are: David Moore, C. Hammond High School, Alexandria, 10th Grade; Jack Donnelly, Willis ool, Arlington, 12th Grade scholarship winner; Governor Almond; Jerry on, Appomattox Elementary School, Appomattox County, 7th Grade; h Shover, Stafford High School, Stafford County, 12th Grade; and Neil A. l, Charlottesville, 6th Grade.

Checks and certificates were made out at the game commission (left) for 137 cash winners and 240 certificate winners. Grand prize winners toured the commission's office in Richmond (above).

A tour of Virginia's historic State Capitol for the winners and their parents also preceded the award ceremony.

The scholarship winner, the grand prize winners, and the principals of the 100 percent participation schools were photographed on the Capital's steps.

llife Essay Contest

ge H. Harrison

sportsmen encouraged boys and girls in grades five through 12 to write an essay, and many did. More than 9,000 essays were received at the game commission office by the January 31 deadline.

Judges from the three cooperating agencies read every essay. Selecting a few winners was a difficult job. A total of $1,800 was awarded in 137 prizes.

On April 29, following a tour of the game commission offices and the Capitol, Governor J. Lindsay Almond, Jr. presented the first place prizes in the Senate Chamber of the Capitol. The luncheon that followed wound up the big day in Richmond. The 13th annual wildlife contest was over.

Eighth grade winner Jerry Shreckhise received the governor's congratulations and best wishes at the awards ceremony in the Senate Chambers.

Judges Gordon Brooks of the Department of Education, Burdge Caton, Virginia Division Izaak Walton League president, and Game Commissioner H. G. Bauserman (representing Commissioner E. C. Nettles) chose the top winners.

The winners attended a special luncheon at a Richmond hotel to wind up an exciting morning, their reward for writing outstanding essays.

Nuisance Bird Control

By F. NELSON SWINK, JR., *Assistant District Agent*
Bureau of Sport Fisheries and Wildlife
U. S. Fish and Wildlife Service

Commission Photos by George H. Harrison

EACH year more and more complaints and questions concerning nuisance birds are being received by county agents, state and federal wildlife officials, and pest control operators. The chief offenders listed among the nuisance birds are starlings, English sparrows, and vagrant pigeons.

The major objection to these birds is their habit of establishing large permanent or semi-permanent roosts. Direct damage to trees and shrubs has occurred in both rural and residential areas. The birds may break the branches or split the limbs of ornamental and fruit trees by sheer weight. The disposition of large quantities of guano beneath the trees can actually alter soil conditions so as to seriously affect the growth of the tree. In cities and towns the disturbing noise and the odor from droppings and regurgitated food are quite offensive; consequently, the presence of these nuisance birds has actually resulted in the lowering of real estate values. Whenever these birds roost in business locations, similar property losses occur because of the unsightly appearance of the buildings and sidewalks. The filth increases the cost of maintenance of public and other office buildings, and very often is quite disagreeable to the occupants.

There are three major avenues of approach toward the elimination of these objectionable roosts. First, attempts should be made to deprive the birds of their accustomed roosts by removing the roosting sites or by eliminating their accessibility by protective covering. Roost sites such as church belfries, towers, open or broken windows in storage buildings and other obvious roosting areas should be screened with rustproof wire of ¾-inch mesh. The birds can also be denied access to roosting on ledges, cornices, and other structural features by covering these places with wire mesh, metal or wood sheathing installed at a sharp angle. Once in place, these protective measures are barely noticeable from the ground.

Another approach to depriving the birds of suitable roosts on buildings is the permanent installation of wires on ledges to disrupt the roosting birds by means of electrical impulses. The birds are not killed.

Still another method is the coating of the ledges with "sticky" materials, available in various forms, to keep birds from roosting on ledges, sills, trees, and other places.

In residential and rural areas where tree roosts are common, trimming or pruning of the trees can eliminate the roosting site and discourage the birds. This measure is good for one year, but by trimming for two or three years in succession, the birds are encouraged to move to another area.

The second approach is the use of frightening devices which can give some local relief from large flocks of birds. Shooting firearms near the roost just before dark would be one of the simplest frightening devices, but one that would be either impractical or impossible to use in city or residential areas. Some of the methods which have proved effective include the use of Roman candles shot directly into the roost after dark and firecrackers set off just under the roost. Flashguns and rope firecrackers have proved satisfactory in some cases, but usually they are more expensive. The ringing of bells or rattling of tin cans containing a few pebbles, fastened up in the tree roost and operated by strings from the ground, has been used with moderate success at long established roosts. Persistence seems to be the key to success in keeping the birds away from the roost.

The third alternative is to reduce materially the number

"The disposition of large quantities of guano beneath the trees can actually alter soil conditions so as to seriously affect the growth of the trees."

Frightening devices can give some local relief from large flocks of birds, but persistence is necessary.

This cloud of blackbirds roosted in a small wooded area in Richmond's Bon Air section this spring. Because concentrations of starlings and English sparrows often include such protected species as robins and purple martins, caution should be exercised in any control effort to prevent the destruction of such birds.

of birds by concentrated efforts over large areas, not just in a few localities. This can be accomplished by shooting into occupied roosts with a shotgun, .22 rifle loaded with fine shot, or compressed air gun. Many cities prohibit the use of firearms within the corporate limits, and permission to use this method must be obtained from local authorities. Shooting should be done well after dark to obtain the desired results. Another method is trapping the birds with large wire traps. Live decoys placed in the traps will give better results. This method is successful at the feeding grounds and usually will not work at the roosting site. The feeding grounds may be as much as 15 to 20 miles from the roosting area. Poisoning is another technique which can sometimes be effectively used at the feeding ground if properly handled. For the best results the birds should be prebaited with a suitable and acceptable bait so that they become accustomed to eating the offered food. Then after about a week of this prebaiting, the poisoned grain or other food should be placed in the area where prebaiting occurred. Extreme care should be used in handling poisonous materials.

Because many species of birds are protected by federal law, caution should be exercised in any control effort to prevent the destruction of such birds as the robin and the purple martin, which sometimes can be found roosting with starlings and English sparrows. Local authorities should be notified before considering any shooting, poisoning, or large-scale trapping operations to reduce an overpopulation of nuisance birds. A list of dealers in pyrotechnic supplies and flashguns, shocking devices, chemical coating materials, and information on preparation of poison baits and large wire bird traps can be obtained from the U. S. Fish and Wildlife Service, Box 175, Harrisonburg, Virginia.

MULTIPLE USE (Continued from page 9)

As long, however, as he bears in mind that one side of the equation must always be the greatest common good in the long run, the net result will be successful.

Multiple use is basic Forest Service policy. Every unit manager, yes, every Forest Service employee, has been well informed of his responsibilities. It is recognized that, in dealing with units of land, there will be one or more dominant uses. Coordinating other compatible uses with these dominant uses, while anticipating and resolving the conflicts, presents a continual challenge to those of us who have had the opportunity to administer the national forests of the nation.

In the words of Chief Forester McArdle, "multiple use delivers, in growing measure under sound conservation practices, more products and benefits from the land than any other system of management." That is, I am sure, what the public expects and what the public should get from the administration of all of its lands.

EDITORIAL (Continued from page 3)

act to see that something is done—before it is too late.

There are many splendid organizations, as well as governing bodies, interested in this problem. One private, non-profit organization in particular, the Nature Conservancy, 2039 K Street, N. W., Washington 6, D. C., has laudable objectives in this area. (See "Letters to Editor" column.) Anyone who is interested in doing something more than just talking about it can get advice on what to do from the Conservancy for only a three-cent postcard. We cannot recommend this organization to Virginians and others too highly.—J. J. S.

Complete Text of the Virginia Boating Safety Act

(Chapter 500 of the Acts of 1960, Approved March 31, 1960)

Be it enacted by the General Assembly of Virginia:

ARTICLE I

1. § 1. It is the policy of this State to promote safety for persons and property in and connected with the use, operation, and equipment of vessels, and to promote uniformity of laws relating thereto.

ARTICLE II

§ 2. As used in this act, unless the context clearly requires a different meaning:

(1) "Vessel" means every description of watercraft, other than a seaplane on the water, used or capable of being used as a means of transportation on water.

(2) "Motorboat" means any vessel propelled by machinery of ten or more horsepower, whether or not such machinery is the principal source of propulsion, but shall not include a vessel which has a valid marine document issued by the Bureau of Customs of the United States Government or any federal agency successor thereto.

(3) "Owner" means a person, other than a lien holder, having the property in or title to a motorboat. The term includes a person entitled to the use or possession of a motorboat subject to an interest in another person, reserved or created by agreement and securing payment or performance of an obligation, but the term excludes a lessee under a lease not intended as security.

(4) "Waters of this State" means any public waters within the territorial limits of this State, and the marginal sea adjacent to this State and the high seas when navigated as a part of a journey or ride to or from the shore of this State.

(5) "Person" means an individual, partnership, firm, corporation, association, or other entity.

(6) "Operate" means to navigate or otherwise use a motorboat or a vessel.

(7) "Commission" means the Commission of Game and Inland Fisheries.

§ 3. (a) It shall be the duty of the Commission of Game and Inland Fisheries to enforce and administer the provisions of this act.

(b) The Chairman of the Commission shall designate from among the members of the Commission three members who shall serve as the Motorboat Committee of the Commission, and who shall, in their activities with the Commission, place special emphasis on the administration and enforcement of this act.

(c) All expenses required for administration and enforcement of this act shall be paid from the funds collected porsuant to the numbering provisions of this act, provided, however, that the Commission is hereby authorized, subject to the approval of the Governor, to ose funds from the cash balance of the game protection fund in an amount not to exceed one hondred thousand dollars, to be osed for initiating the provisions of this act and to be refonded as soon as practicable, but within a period not to exceed four years, from the funds collected pursuant to the numbering provisions of this act. All moneys collected porsuant to the nombering provisions of this act shall be deposited into the State Treasury and credited to a special fund known as the Game Protection Fund, and accounted for as a separate part thereof. Soch moneys shall be made available to the Commission for the administration and enforcement of this act as herein provided, and for educational activiies relating to boating safety and for other activities and purposes of direct benefit to the boating public and for no other purpose. All moneys collected pursuant to the numbering provisions of this act and moneys otherwise provided for in this act shall be made available to carry out the intent and purposes as set forth herein in accordance with plans approved by the Commission and all such funds are hereby appropriated, reserved, set aside and made available until expended for the enforcement, administration and other provisions of this act, provided that the Commission is hereby aothorized to adopt a plan or formula for the use of said moneys for employing and equipping such additional personnel as may be necessary for carrying out the provisions of this act and for paying a proportionate share of the salaries, expense, and operational costs of existing personnel according to the time and effort expended by them in carrying out the provisions of this act. Such plan or formula may be altered or amended from time to time by the Commission as existing conditions may warrant. No fonds derived from the sale of hunting licenses or fishing licenses shall be expended or diverted for carrying out the provisions of this act.

§ 4. Every motorboat on the waters of this State shall be numbered. No person shall operate or give permission for the operation of any motorboat on such waters unless the motorboat is numbered in accordance with this act, or in accordance with applicable federal law, or in accordance with a federally approved numbering system of another state, and unless (1) the certificate of number awarded to such motorboat is in full force and effect, and (2) the identifying number set forth in the certificate of number is displayed on each side of the bow of such motorboat.

§ 5. (a) The owner of each motorboat requiring numbering by this State shall file an application for number with the Commission on forms approved by it. The application shall be signed by the owner, or his agent, of the motorboat and shall be accompanied by a fee of five dollars for the triennium beginning July one, nineteen hundred sixty. Upon receipt of the application in approved form the Commission shall have the same entered upon the records of its office and issue to the applicant a certificate of number stating the number awarded to the motorboat and the name and address of the owner. The owner shall paint on or attach to each side of the bow of the motorboat the identification number in such manner as may be prescribed by rules and regulations of the Commission in order that it may be clearly visible. The number shall be maintained in legible condition. The certificate of number shall be pocket-size and shall be available at all times for inspection on the motorboat for which issued, whenever such motorboat is in operation.

(b) The owner of any motorboat already covered by a number in full force and effect which has been awarded to it pursuant to then operative federal law or a federally approved numbering system of another state shall record the number prior to operating the motorboat on the waters of this State in excess of the ninety-day reciprocity period provided for in § 7 (1) of this act. Such recordation shall be in the manner and pursuant to the procedure required for the award of a number under subsection (a) of this section, except that no additional or substitute number shall be issued.

(c) Should the ownership of a motorboat change, a new application form with fee of one dollar shall be filed with the Commission and a new certificate bearing the same number shall be awarded in the manner as provided for in an original award of number. In case a certificate should become lost a new certificate bearing the same number shall be issued upon payment of a fee of fifty cents. Possession of the certificate shall in cases involving prosecution for violation of any provision of this act be prima facie evidence that the person whose name appears thereon is the owner of the boat referred to therein.

(d) In the event that an agency of the United States Government shall have in force an over-all system of identification numbering for motorboats within the United States, the numbering system employed pursuant to this act by the Commission shall be in conformity therewith.

(e) The Commission may award any certificate of number directly or may aothorize any person to act as agent for the awarding thereof. In the event that a person accepts soch authorization, he may be assigned a block of numbers and certificates therefor which upon award, in conformity with this act and with any rules and regulations of the Commission, shall be valid as if awarded directly by the Commission.

(f) All records of the Commission made or kept pursuant to this section shall be public records.

(g) Every certificate of number awarded pursuant to this act shall continue in foll force and effect for a period of three years unless sooner terminated or discontinued in accordance with the provisions of this act. Certificates of number may be renewed by the owner in the same manner provided for in the initial securing of the same.

(h) Each certificate of number awarded pursuant to this act must be renewed each triennium on or before July one; otherwise, such certificate shall lapse and be void. Application for renewal shall be submitted on forms approved by the Commission and shall be accompanied by a fee of five dollars.

(i) The owner shall furnish the Commission notice of the transfer of all or any part of his interest other than the creation of a security interest in a motorboat numbered in this State pursuant to subsections (a) and (b) of this section or of the destruction or abandonment of such motorboat, within fifteen days thereof. Such transfer, destruction, or abandonment shall terminate the certificate of number for such motorboat except that, in the case of a transfer of a part interest which does not affect the owner's right to operate such motorboat, such transfer shall not terminate the certificate of number.

(j) Any holder of a certificate of number shall notify the Commission within fifteen days if his address no longer conforms to the address appearing on the certificate, and shall, as a part of such notification, furnish the Commission his new address.

The Commission may provide in its rules and regulations for the surrender of the certificate bearing the former address and its replacement with a certificate bearing the new address or for the alteration of an outstanding certificate to show the new address of the holder.

(k) No number other than the number awarded to a motorboat or granted reciprocity pursuant to this act shall be painted, attached, or otherwise displayed on either side of the bow of such motorboat.

(l) Dealers and manufacturers.

(1) The registering numbering requirements of this act shall apply to dealers and manufacturers of motorboats.

(2) Applications for certificates of nomber shall be made on the approved application form prescribed in this act. Dealers and manufacturers shall certify that they are dealers or manufacturers, as the case may be.

(3) Applications shall be accompanied by a fee of fifteen dollars for dealers and twenty-five dollars for manufacturers, by check or money order, and shall be forwarded to the Commission.

(4) Upon receipt by the Commission of a properly completed application and fee, it shall issue to the applicant a dealer's or manufacturer's certificate of number as appropriate, which may be used in connection with the operation of any motorboat in the possession of such dealer or manufacturer, when the boat is being osed for demonstration purposes.

(5) Additional dealer's or manufactorer's certificates of number may be obtained by making application in the same manner as prescribed for the initial certificate with payment of an additional fee of eight dollars for each additional certificate.

(b) Manufacturers or dealers may have the number or numbers awarded to them printed upon or attached to a removable sign or signs to be temporarily but firmly moonted upon or attached to the boat being demonstrated, so long as the display meets the requirements of this act.

ARTICLE III

§ 6. (a) Motorboats subject to the provisions of this act shall be divided into four classes as follows:

(1) Class A. Less than sixteen feet in length.

(2) Class 1. Sixteen feet or over and less than twenty-six feet in length.

(3) Class 2. Twenty-six feet or over and less than forty feet in length.

(4) Class 3. Forty feet or over.

(b) Every motorboat in all weathers from sunset to sunrise shall carry and exhibit the following lights when under way, and during such times no other lights which may be mistaken for those prescribed shall be exhibited:

(1) Class A shall carry a white light to show all around the horizon.

Class 1 shall carry a combined lantern in the fore part of the vessel and lower than the white light aft, showing green to starboard and red to port, so fixed as to throw light from right ahead to two points abaft the beam on their respective sides.

(2) Every motorboat of Classes 2 and 3 shall carry the following lights:

a. A bright white light in the fore part of the vessel as near the stem as practicable, so constructed as to show an unbroken light over an arc of the horizon of twenty points of the compass so fixed as to throw the light ten points on each side of the vessel; namely, from right ahead to two points abaft the beam on either side.

b. A bright white light aft to show all around the horizon and higher than the white light forward.

c. On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side. On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side. The said side lights shall be fitted with inboard screens of sufficient height so set as to prevent these lights from being seen across the bow.

(3) Motorboats of Classes A and 1 when propelled by sail alone shall carry the combined lantern, but not the white light aft prescribed by this section. Motorboats of Classes 2 and 3 when so propelled, shall carry the colored side lights, suitably screened, but not the white lights prescribed by this section. Motorboats of all classes, when so propelled, shall carry, ready at hand, a lantern or flashlight showing a white light which shall be exhibited in sufficient time to avert a collision.

(4) Every white light prescribed by this section shall be of such character as to be visible at a distance of at least two miles. Every colored light prescribed by this section shall be of such character as to be visible at a distance of at least one mile. The word "visible" in this subsection, when applied to lights, shall mean "visible" on a dark night with clear atmosphere.

(5) When propelled by sail and machinery any motorboat shall carry the lights required by this section for a motorboat propelled by machinery only.

(c) Any vessel may carry and exhibit the lights required by the Federal Regulations for Preventing Collisions at Sea, 1948, Federal Act of October 11, 1951 (33 USC 143-147d) as amended, in lieu of the lights required by subsection (b) of this section.

(d) Every motorboat of Classes 1, 2, or 3 shall be provided with an efficient whistle or other sound-producing mechanical appliance.

(e) Every motorboat of Classes 2 or 3 shall be provided with an efficient bell.

(f) Every motorboat shall carry at least one life preserver or life belt, or ring buoy, or other device of the sort prescribed by the regulations of the Commission for each person on board, so placed as to be readily accessible: Provided, that every motorboat carrying passengers for hire shall carry so placed as to be readily accessible at least one life preserver of the sort prescribed by the regulations of the Commission for each person on board.

(g) Every motorboat shall be provided with such number, size, and type of fire extinguishers, capable of promptly and effectually extinguishing burning gasoline, as may be prescribed by the regulations of the Commission, which fire extinguisher shall be at all times kept in condition for immediate and effective use and shall be so placed as to be readily accessible.

(h) The provisions of subsections (d), (e), and (g) of this section shall not apply to motorboats while competing in any race conducted pursuant to Section 14 of this act or, if such boats be designed and intended solely for racing, while engaged in such navigation as is incidental to the tuning up of the boats and engines for the race.

(i) Every motorboat shall have the carburetor or carburetors of every engine therein (except outboard motors) using gasoline as fuel, equipped with such efficient flame arrestor, backfire trap, or other similar device as may be prescribed by the regulations of the Commission.

(j) Every such motorboat and every such vessel, except open boats, using as fuel any liquid of a volatile nature, shall be provided with such means as may be prescribed by the regulations of the Commission for properly and efficiently ventilating the bilges of the engine and fuel tank compartments so as to remove any explosive or inflammable gases.

(k) The Commission is hereby authorized to make rules and regulations modifying the requirements contained in this act to the extent necessary to keep these requirements in conformity with the provisions of the federal navigation laws, or, with the rules promulgated by the United States Coast Guard.

(l) No person shall operate or give permission for the operation of a vessel which is not equipped as required by this section or modification thereof.

(m) In the event that any of the regulations of subsections (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), and (l) of Section 6 are in conflict with the equipment regulations of the Federal Motorboat Act of 1958 as amended, the Commission is hereby granted the authority to adopt such regulations as are necessary to conform with the Federal Motorboat Act of 1958 as amended.

§ 7. A motorboat shall not be required to be numbered under this act if it is:

(1) A motorboat which is required to be awarded a number pursuant to federal law or a federally approved numbering system of another state, and for which a number has been so awarded: Provided, that any such boat shall not have been within this State for a period in excess of ninety consecutive days.

(2) A motorboat from a country other than the United States temporarily using the waters of this State.

(3) A motorboat whose owner is the United States, a state or a subdivision thereof.

(4) A ship's lifeboat.

§ 8. It shall be unlawful for the owner of a boat livery to rent a boat equipped with ten or more horsepower to any person unless the provisions of this act have been complied with. It shall be the duty of owners of boat liveries to equip all motorboats rented as required by this act.

Article IV

§ 9. The exhaust of every internal combustion engine used on any motorboat shall be effectively muffled by equipment so constructed and used as to muffle the noise of the exhaust in a reasonable manner. The use of cutouts is prohibited, except for motorboats competing in a regatta or boat race approved as provided in § 14 of this act, and for such motorboats while on trial runs, during a period not to exceed forty-eight hours immediately preceding such regatta or race and for such motorboats while competing in official trials, for speed records during a period not to exceed forty-eight hours immediately following such regatta or race.

§ 10. (a) No person shall operate any motorboat or vessel, or manipulate any skis, surfboard, or similar device in a reckless or negligent manner so as to endanger the life, limb, or property of any person.

(b) No person shall operate any motorboat or vessel, or manipulate any water skis, surfboard or similar device while intoxicated or under the influence of any narcotic drug, barbiturate, or marijuana.

Every violation of the provisions of this section shall be a misdemeanor.

§ 11. (a) It shall be the duty of the operator of a vessel involved in a collision, accident, or other casualty, so far as he can do so without serious danger to his own vessel, crew, and passengers (if any), to render persons affected by the collision, accident, or other casualty such assistance as may be practicable and as may be necessary in order to save them from or minimize any danger caused by the collision, accident, or other casualty, and also give his name, address, and identification of his vessel in writing to any person injured and to the owner of any property damaged in the collision, accident, or other casualty.

(b) In the case of collision, accident, or other casualty involving a vessel, the operator thereof, if the collision, accident, or other casualty results in death or injury to a person or damage to property in excess of one hundred dollars, shall, within ten days, file with the Commission a full description of the collision, accident, or other casualty, including such information as said agency may, by regulation, require. Such report shall not be admissible as evidence.

§ 12. In accordance with any request duly made by an authorized official or agency of the United States, any information compiled or otherwise available to the Commission pursuant to § 11 (b) shall be transmitted to said official or agency of the United States.

§ 13. (a) No person shall operate a vessel on any waters of this State for towing a person or persons on water skis, or a surfboard, or similar device unless there is in such vessel a person, in addition to the operator, in a position to observe the progress of the person or persons being towed or unless the skiers wear life preservers or unless the boat is equipped with a rear view mirror.

(b) No person shall operate a vessel on any water of this State towing a person or persons on water skis, a surfboard, or similar device, nor shall any person engage in water skiing, surfboarding, or similar activity at any time between the hours from one hour after sunset to one hour before sunrise.

(c) The provisions of subsections (a) and (b) of this section do not apply to a performer engaged in a professional exhibition or a person or persons engaged in an activity authorized under § 14 of this act.

(d) No person shall operate or manipulate any vessel, tow rope, or other device by which the direction or location of water skis, a surfboard, or similar device may be affected or controlled in such a way as to cause the water skis, surfboard, or similar device, or any person thereon to collide with any object or person.

Regattas and Races

§ 14. (a) The Commission may authorize the holding of regattas, motorboat, or other boat races, marine parades, tournaments, or exhibitions on any waters of this State. It shall adopt and may, from time to time, amend regulations concerning the safety of motorboats and other vessels and persons thereon, either observers or participants. Whenever a regatta, motorboat, or other boat race, marine parade, tournament, or exhibition is proposed to be held, the person in charge thereof, shall, at least fifteen days prior thereto, file an application with the Commission for permission to hold such regatta, motorboat, or other boat race, marine parade, tournament, or exhibition. The application shall set forth the date, time and location where it is proposed to hold such regatta, motorboat, or other boat race, marine parade, tournament, or exhibition, and it shall not be conducted without authorization of the Commission in writing.

(b) The provisions of this section shall not exempt any person from compliance with applicable federal law or regulation, but nothing contained herein shall be construed to require the securing of a State permit pursuant to this section if a permit therefor has been obtained from an authorized agency of the United States.

Special Regulations

§ 15. (a) Any subdivision of this State, may at any time, but only after public notice, make formal application to the Commission for special rules and regulations with reference to the safe and reasonable operation of vessels on any water within its territorial limits and shall set forth therein the reasons which make such special rules or regulations necessary or appropriate.

(b) The Commission is hereby authorized to make special rules and regulations with reference to the safe and reasonable operation of vessels on any waters within the territorial limits of any subdivision of this State.

§ 16. All regulations shall conform to Chapter 8, Article 1, Title 29 of the Code of Virginia and all rules and regulations shall be published by the Commission in a convenient form.

Article V

§ 17. (a) Every game warden and every other law enforcement officer of this State and its subdivisions shall have the authority to enforce the provisions of this act and in the exercise thereof shall have authority to stop any vessel subject to this act; and, after having identified himself in his official capacity, shall have authority to board and inspect any vessel subject to this act; provided that the provisions of this article shall not apply to any vessel on which is displayed a current valid United States Coast Guard or United States Coast Guard Auxiliary inspection decal.

§ 18. Any person who violates any provision of §§ 4, 5, 6, 8, 9, 11, 13, and 14 of this act shall be guilty of a misdemeanor and shall be punished by a fine of not more than fifty dollars for each such violation.

§ 19. Notwithstanding any other provisions of this act, the Commission may promulgate such rules and regulations regarding the operation of watercraft by manufacturers, distributors, dealers, and demonstrators as the Commission may deem necessary and proper.

2. All laws and parts of laws in conflict with this act are hereby repealed.

Arlington Girl Wins Wildlife Essay Contest Scholarship Award

MARGARET DIANE LITTLE of Arlington was awarded a $400 college scholarship by Governor J. Lindsay Almond, Jr. in Richmond Friday, April 29, for writing the best 12th grade essay submitted in the 13th annual wildlife essay contest co-sponsored by the state game commission and the Virginia Division of the Izaak Walton League of America.

The Wakefield High School senior and $50 grand prize winners from each of the eight eligible grades received their checks and certificates from the governor at presentation ceremonies in the senate chamber of the state capitol, after which the winners and their families were given a tour of Richmond and a special luncheon.

Grand prize winners were: 12th grade, Keith Shover, Stafford High School, Stafford County; 11th grade, Jack Donnelly, Willis High School, Floyd County; 10th grade, Cynthia Weyland, Francis C. Hammond High School, Alexandria; 9th grade, David Moore, Quantico Post School, Prince William County; 8th grade, Jerry C. Shreckhise, Middle River High School, Augusta County; 7th grade, Grey Hesson, Appomattox Elementary School, Appomattox County; 6th grade, Neil A. Benfer, Jr., McIntire Elementary School, Charlottesville; and 5th grade, Quwin Quesenberry, Jr., G. H. Reid School, Chesterfield County.

In all, some 8,928 students from 209 schools participated in the 1959-60 wildlife essay contest, 1,324 more than entered the 1958-59 event, and 137 were awarded cash prizes. Subject of the contest was "How Wildlife Benefits From The Wise Use Of Soil, Forests and Water."

Other prize winners were:

SECOND PLACE WINNERS—$25.00 each
12th Grade, Cordelia Ann Bruce, Bedford High School, Bedford
11th Grade, Martha Barnes, Cradock High School, Norfolk County
10th Grade, Bill Rucker, Bedford High School, Bedford
9th Grade, Judy Wolfe, Handley High School, Winchester, Frederick County
8th Grade, Calvin Burton, Stafford High School, Stafford County
7th Grade, Ronald Wayne Bass, Courtland Elem. School, Southampton County
6th Grade, Edward Marks, Capron Elem. School, Southampton County
5th Grade, Ronald Tignor, Marriott High School, King and Queen County

THIRD PLACE WINNERS—$15.00 each
12th Grade, Frances Alderman, Willis High School, Floyd County
11th Grade, David Duren, Lane High School, Charlottesville
10th Grade, James Dozier, Prince George School, Prince George County
9th Grade, Morris Overby, St. Joseph's High School, Petersburg
8th Grade, John Douglas Griffin, Roanoke Catholic High School, Roanoke
7th Grade, Mark A. LeRoy, Brentsville Dist. School, Prince William County
6th Grade, Cindy Page, Crossroads School, Norfolk County
5th Grade, Shirley Blood, Bren Mar School, Fairfax County

HONORABLE MENTION—$10.00 each
12th Grade, Maphis Cook, Stafford High School, Stafford County
12th Grade, Virginia Frances Lucas, Fieldale High School, Henry County
11th Grade, Jim McConkey, Loudoun High School, Loudoun County
11th Grade, Donna Price, Princess Anne High School, Princess Anne County
10th Grade, Jeanne Steinhibler, Princess Anne High School, Princess Anne County
10th Grade, Nancy Fisher, Northumberland High School, Northumberland County
9th Grade, Henry Weaver, Culpeper High School, Culpeper County
9th Grade, Donna Daniel, Fieldale High School, Henry County
8th Grade, Ronnie Cox, Bland High School, Bland County
8th Grade, Richard Hoffman, George Mason High School, Fairfax County
7th Grade, Sandra Ballew, Greenville Elem. School, Greenville County
7th Grade, Jimmy Smith, Arvonia Elem. School, Buckingham County
6th Grade, Billy Atwell, Brumlay Gap School, Washington County
6th Grade, Yolanda Thomas, Cleveland School, Washington County
5th Grade, Susan Loomis, Jeter School, Covington
5th Grade, Linda Jane Harman, Bland Elem. School, Bland County

SPECIAL MENTIONS—$5.00 each
12th Grade, Laura Lockridge, Churchville High School, Deerfield, Augusta County
12th Grade, Betsy Gail Stanley, Bedford High School, Bedford, Bedford County
12th Grade, Kathleen A. Troilo, Culpeper High School, Culpeper County
12th Grade, Iva Jane Belcher, Willis High School, Meadows of Dan, Floyd County
12th Grade, Betty Lee Hill, Willis High School, Meadows of Dan, Floyd County
12th Grade, Dianne Blair, Climax High School, Rt. 2 Chatham, Pittsylvania County
12th Grade, Ginger Watts, Prince George High School, Prince George County
12th Grade, Gayle Gresham, Princess Anne High School, Lynnhaven, Princess Anne County
12th Grade, Donna Powers, Roanoke Catholic High School, Roanoke
12th Grade, Julia Anne Goodman, Effinger High School, Lexington, Rockbridge County
12th Grade, Anne Ray Newland. Rural Retreat High School, Wythe County
12th Grade, H. P. Widener, Damascus High School, Damascus, Washington County

11th Grade, Ewan Ergenbright, Lane High School, Charlottesville, Albemarle County
11th Grade, A. M. Stafford, Jr., Bland High School, Bland County
11th Grade, Ona Lee Wade, Willis High School, Willis, Floyd County
11th Grade, Thomas H. Spates, Jr., Loudoun High School, Leesburg, Loudoun County
11th Grade, Leroy Settle, Cradock High School, Portsmouth, Norfolk County
11th Grade, George Daughtry, Post High School, Quantico, Prince William County
11th Grade, Lee Stadler, Princess Anne School, Lynnhaven, Princess Anne County
11th Grade, Richard Vance Henninger, Wm. Fleming High School, Roanoke
11th Grade, John M. Givens, Roanoke Catholic High School, Roanoke
11th Grade, Edward Busic, Honaker High School, Honaker, Russell County
11th Grade, Bill Stowers, Marion High School, Marion, Smyth County
11th Grade, Jack Hall, Damascus High School, Damascus, Washington County

10th Grade, George Williams, Francis C. Hammond High School, Alexandria
10th Grade, Marshall Johnson, Scottsville High School, Scottsville, Albemarle County
10th Grade, Joe Hoffarth, E. C. Glass High School, Lynchburg, Campbell County
10th Grade, Roy West, Gloucester High School, Gloucester County
10th Grade, Barbara Blanch Cetis, Marriott High School, St. Stephen's Church, King and Queen County
10th Grade, Tommie Anderson, Climax High School, Chatham, Pittsylvania County
10th Grade, Carolyn Lee Pittman, Prince George High School, Prince George County
10th Grade, Barney Maloney, Post High School, Quantico, Prince William County
10th Grade, Clifton B. Jeter, Maggie L. Walker High School, Richmond
10th Grade, Richard G. Groff. Roanoke Catholic High School, Roanoke
10th Grade, Carol Ann Schuyler, Parry McCluer High School, Rockbridge County
10th Grade, Janet Lee Bowyer, Bedford High School, Bedford

9th Grade, Virgie Katherine Blankenship, Bland High School, Bland County
9th Grade, Virginia Townley, Bland High School, Bland County
9th Grade, Judy Pugh, Culpeper High School, Culpeper County
9th Grade, Mike Rankin, Fairfax High School, Fairfax County
9th Grade, Carol Ellen Covell, Fairfax High School, Fairfax County
9th Grade, Davy Street, Tuckahoe Junior High School, Henrico County
9th Grade, Biddy Acree, Marriott High School, King and Queen County
9th Grade, Bill Roberts, Thomas Jefferson High School, Richmond
9th Grade, Peggy A. Torrance, Stafford High School, Falmouth, Stafford County
9th Grade, Charles Lindsey, Marion High School, Marion, Smyth County
9th Grade, Keith Richardson, Wakefield High School, Sussex County
9th Grade, Rosemary Griffin, Roanoke Catholic High School, Roanoke

8th Grade, Paul Lacy, Jeter High School, Covington, Alleghany County
8th Grade, Geraldine Sipe, Robert E. Lee Junior High School, Danville, Pittsylvania County
8th Grade, Chip Gaddy, Robert E. Lee Junior High School, Danville, Pittsylvania County
8th Grade, Martha Susan Winfrey, Tuckahoe Junior High School, Henrico County
8th Grade, John Lane Mitchell, Jr., Marriott High School, St. Stephen's Church, King and Queen County
8th Grade, Robert Francis Wrightson, Middlesex High School, Saluda, Middlesex County
8th Grade, Albert Fisher, Northumberland County High School, Heathsville, Northumberland County
8th Grade, Susan Scruggs, Post High School, Quantico, Prince William County
8th Grade, Dennis Bethards, Post High School, Prince William County
8th Grade, Muriel Hurt, Roanoke Catholic High School, Roanoke
8th Grade, George Ross, Tazewell High School, Tazewell County
8th Grade, Phyllis June Hutchison, Damascus High School, Washington County

7th Grade, Dale Berry, Greenville Elem. School, Augusta County
7th Grade, Susan Jane Eister, Bon Air Elem. School, Chesterfield County
7th Grade, Richard Menaker, Westwood Hills School, Waynesboro, Augusta County
7th Grade, John E. Hall, Bon Air Elem. School, Chesterfield County
7th Grade, James Carson Swann, Jr., Battlefield Park School, Hanover County
7th Grade, Diana S. Kidwell, Woodley Hills School, Alexandria, Fairfax County
7th Grade, Helen Penrose Ware, Orange Elem. School, Orange County
7th Grade, Barbara Reading, Brentsville Dist. School, Nokesville, Prince William County
7th Grade, Alan Moore, Highland Park School, Roanoke
7th Grade, Elizabeth Holdren, Highland Park School, Roanoke
7th Grade, Gloria Anderson, Mountain View School, Buena Vista, Rockbridge County
7th Grade, Alice Kelling, Westwood Hills School, Waynesboro, Augusta County

6th Grade, Suzanne Marie Turner, McIntire School, Charlottesville, Albemarle County
6th Grade, Linda Thacker, McIntire School, Charlottesville, Albemarle County
6th Grade, Norma Jean Smith, Jeter Elem. School, Covington, Alleghany County
6th Grade, Wm. T. Young, III, Greensville School, Augusta County
6th Grade, Bruce Fisher, Bon Air Elem. School, Chesterfield County
6th Grade, Robert Walker, New Kent High School, Barhamsville, New Kent County
6th Grade, Phillip Doughtie, Cradock Elem. School, Churchland, Norfolk County
6th Grade, Pamela Tinius, Cradock Elem. School, Churchland, Norfolk County
6th Grade, Christina Smith, John H. Russell Elem. School, Quantico, Prince William County
6th Grade, Merle Greenberg, Bennett Elem. School, Manassas, Prince William County
6th Grade, Donnie Wynegar, Hayter's Gap Elem. School, Holston, Washington County
6th Grade, Sheryl Ogle, Westwood Hills School, Waynesboro, Augusta County

5th Grade, Deborah Lane, Wilson Elem. School, Fishersville, Augusta County
5th Grade, Donna E. Clarkson, Lawrenceville Elem. School, Brunswick County
5th Grade, Tenna L. DeBruler, Bren Mar School, Alexandria, Fairfax County
5th Grade, John D. Fogg, Marriott Elem., St. Stephen's Church, King and Queen County
5th Grade, Patricia Campbell, Battlefield Park School, Hanover County
5th Grade, Joanne Thomas, Mineral Elem. School, Louisa County
5th Grade, Barbara Ann Herring, Brentsville Elem. School, Nokesville, Prince William County
5th Grade, Hamilton M. Hoyler, John H. Russell Elem. School, Quantico, Prince William County
5th Grade, Carol Anne Martin, Kempsville Meadows School, Princess Anne County
5th Grade, Rosemary Denson, Highland Park School, Roanoke
5th Grade, Eddy Seaver, Robert E. Lee School, Bristol, Washington County
5th Grade, Helen Maxie, G. H. Reid Elem. School, Chesterfield County

SCHOOL PARTICIPATION AWARDS—

La Crosse Elementary School, Howard M. Mustain, Jr., Principal, Mecklenburg County
Marriott High School, Henry C. Rucker, Principal, King and Queen County
Lawrenceville Elem. School, W. D. Wholey, Principal, Brunswick County
Gladesboro Elem. School, Ninevah J. Willis, Principal, Carroll County

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WHAT IS ECOLOGY? (Continued from page 12)

indications are that the soil layer is shallow with limestone as the base rock. Over an area nearby, pines may be the pioneer woody plant. In the latter case the soil is probably shale or sandstone containing little if any lime. In the Piedmont area, red cedars are commonly the pioneer woody plant in areas of certain soil type, while in the coastal plain, red cedar communities are associated with marl, especially shell deposits, both of which have a high content

Photo by A. B. Massey

Where limestone is absent, pine is the pioneer woody plant following the grass-weed stage.

of lime. On the other hand, a growth of huckleberries or Mountain laurel indicate a rather infertile soil with little or usually no lime, what we commonly call an acid soil. Plant communities are "hand writing on the wall"; if we know the ecology of the dominant species, they reveal the local conditions.

Ecology is paramount in agriculture. The livestock farmer maintains his pasture in the grass stage by grazing control, fertilization, and weed control, thus promoting the grass most favorable to his soil and climate. The crop centers in Virginia are governed largely by the environmental factors of soil and climate and likewise the adaptability of varieties.

Bird of the Month:

The Yellow Warbler

DR. J. J. MURRAY
Lexington, Virginia

AS you walk along a shady street in any Virginia town in late April or May you are likely to hear a sweet, brisk song from the maple branches overhead. It sounds as if the bird were trying to say, "Sweet, sweet, sweeter than the sweet." It is a yellow warbler. If it is April, he is probably trying to win a mate. He has come ahead of the females of his race, and having chosen a territory which pleases him he is announcing by his song that the estate is ready and that all that he needs is a mate to share with him its joys and duties. If it is May, he is probably calling out to all and sundry covetous yellow warblers that he has a mate and that he will defend her and their home site against all comers. And fight he will for this, if it should be necessary.

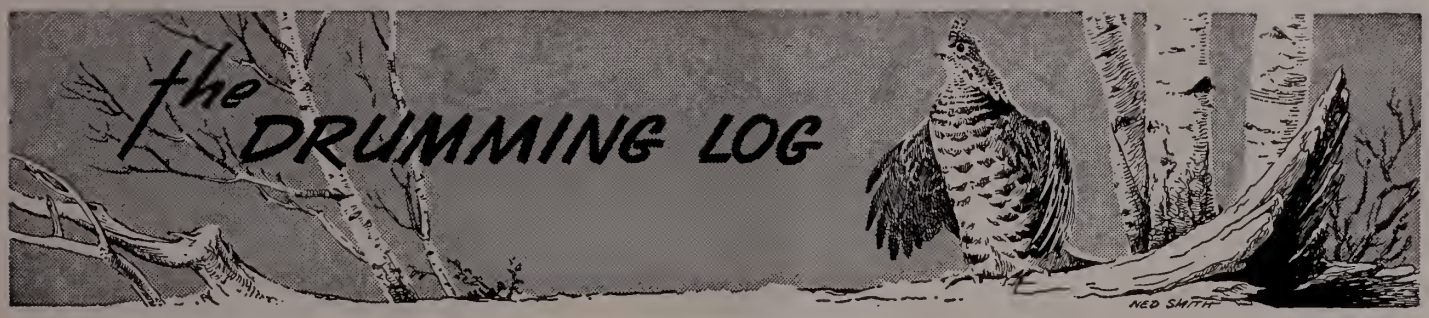
The place of song in bird behavior is most interesting. The reasons for its development are varied. All bird students would agree as to two of its purposes. One is to attract a passing mate and so form the basis for a family. Another is to lay claim to a territory that will provide sufficient food for the young that are the result of the first purpose and to warn rival yellow warblers away from the territory that will supply that food. If you will watch a yellow warbler for long, you will see that he moves from perch to perch in a regular fashion, marking out the boundaries of his territory.

As to other reasons for song there is more argument. To the strictly scientific and possibly somewhat literal type of mind, song, like all other elements of life, has developed on a purely utilitarian basis. It is difficult, however, for some of us to avoid the feeling that for the bird pure pleasure is an element in it. There seems to be so much joy of living when a yellow warbler throws his head back and lets his music pour forth. At the very least, there is in it an exuberance of physical vitality. There may be still other features in bird song that we do not yet understand.

The yellow warbler is a small bird, slightly over five inches in length and slender in shape. Both male and female are yellow, particularly a bright yellow below, while above the male is a bright greenish yellow and the female a duller yellowish olive. The male has reddish streaks on his breast.

This warbler does not care for the woods. It likes to live in the shade trees of our lawns and streets, but an even more favored habitat is a willow-bordered stream. It has a very extensive range in summer, from northern South Carolina and Georgia to the limit of trees along the Arctic circle.

It nests in the lower branches of trees and in large shrubs. Its eggs, like those of many warblers, are white with a wreath of dark markings around the larger end. One of the most unforgettable of my bird memories is of this yellow bird sitting on a white nest of sheep's wool in the top of a blossoming Deutzia bush.



Wildlife Society Awards Conferred

Dr. Enrique Beltran, Subsecretary of Agriculture for Mexico and director of the Mexican Institute of Renewable Natural Resources, received the Leopold Medal, the highest award by professional wildlife conservationists, in a ceremony at the annual banquet of the recent 25th North American Wildlife and Natural Resources Conference in Dallas, Texas. The medal is awarded by The Wildlife Society, an organization of professional fish and wildlife workers, to an individual who has made outstanding contributions to the field.

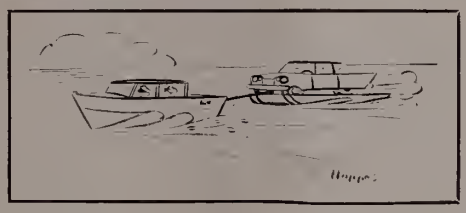
Dr. Beltran was cited for his reorganization of Mexico's Division of Forests, National Parks and Wildlife. His work, bolstered by the strong support of his government, is expected to raise the stature of conservation programs in Mexico within the next few years.

Other Society awards went to Richard W. Westwood, President, American Nature Association, for conservation education; W. E. Ricker, editor, Fisheries Research Board of Canada, for fisheries publication; and A. Starker Leopold, University of California, for his outstanding terrestrial publication, "Wildlife in Mexico."

At its annual business meeting the Society elected Dr. Clarence W. Watson, regional supervisor of the U. S. Fish and Wildlife Service's Federal Aid Division in Atlanta, Georgia, to honorary membership.

Fifth World Forestry Congress to Feature 200 Speakers from 37 Nations

A professional force of 200 speakers from 37 nations will take the lead in exploring every aspect of forestry—from surveying virgin timber in Alaska to discussing new markets for wood products in Africa—during the Fifth World Forestry Congress at Seattle, Wash., Aug. 29-Sept. 10.



"Each of the speakers has had extensive forestry experience and each is an expert on the specific topic assigned to him," according to Dr. Hardy L. Shirley, Dean of the College of Forestry at Syracuse University and Chairman of the Congress Program Committee.

Nearly 2,000 foresters from 90 nations will attend the Congress, the first the United States has hosted and the first to be held in the Western Hemisphere.

The international gathering is designed to advance the science and practice of forestry and to stimulate cooperation among nations in developing the world's forest resources.

Lonnie J. Bassett, Jr., Chesapeake and Potomac Telephone Company installer-repairman, scattered birdseed in Pulaski County while on his phone assignments during the record-breaking 50-inch snowfall there in March. Game Warden D. A. McLeod requested all businesses whose personnel traveled into sparsely settled areas to help wildlife during the emergency.

Preparations for the Congress are being made, in collaboration with the Food and Agriculture Organization of the United Nations, by an organizing committee of 44 forestry experts appointed by the Secretary of State with the Chief of USDA's Forest Service, Dr. Richard E. McArdle, as Chairman.

The two-week program of the Congress will explore in detail 10 broad subject areas: Silviculture and Management, Genetics, Protection, Economics and Policy, Education, Products, Forest and Range Watersheds, Recreation and Wildlife, Operations, and Tropical Forestry.

Green Spaces

The 103-to-8 vote by which the Maryland House of Delegates passed the Blair Lee bill to enable counties to protect their "green spaces" may well reflect a cross-section of public opinion. Residents of many cities are acquiring an acute distaste for the idea of suburbs extending uninterruptedly over the countryside. "When the year 2000 rolls around," Mr. Lee said in defending his bill, "our posterity will thank the Legislature of 1960 for passing it." We do not think the General Assembly will have to wait until 2000.

The bill would give local governments the right to buy or lease development rights from farmers and other landowners. Such authority is the more important since the threatened termination of the Capper-Cramton program for the acquisition of stream valleys in the area around Washington. But every growing metropolitan region needs to save some woods, stream valleys and open land for future parks, flood prevention and just plain breathing space. And there ought to be no illusion that the job will be done with the passage of this bill. The localities will need substantial funds to put it into effect.—from *The Washington Post*

V. J. Whitmer Named to Replace Retiring Game Warden Supervisor Miller

Clemmer Lange Miller of Deerfield, veteran of 32 years of service with the

Commission Photo by Kesteloo

Commission law enforcement chief Webb Midyette congratulates Supervising Warden Whitmer on his appointment.

Commission of Game and Inland Fisheries and game warden supervisor in the Thomas Jefferson District for the past eight years, retired on May 1. His replacement is Virgil Jennings Whitmer of Linville, who served as state game warden in Rockingham County since September 1955.

Deer were practically nonexistent west of the Blue Ridge when Miller, now 66, joined the commission. He said that the greatest thing that ever happened in his district was the cooperative wildlife management agreement entered into by the commission and the U. S. Forest Service in 1938.

Whitmer, 35, is a graduate of Linville-Edom High School and an army veteran of both World War II and Korea, where he served as vehicle maintenance chief. Prior to joining the commission he worked for Rockingham Motor Company in Harrisonburg as a mechanic. He is married and has two sons.

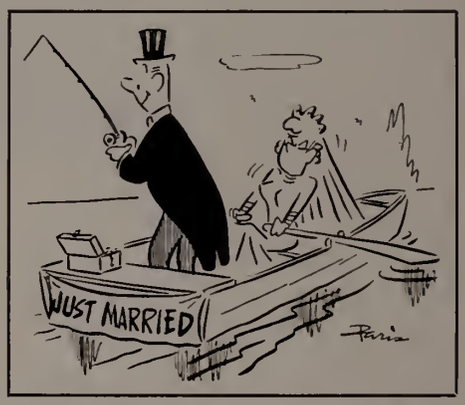
Dugan Now S.C.S. Field Biologist at Roanoke

The U. S. Soil Conservation Service has announced that R. Franklin Dugan, 44, is now S.C.S. field biologist for the Virginia area. Stationed in Roanoke, Dugan has since January 24 filled the position left vacant by the death of Dr. Lawrence Dickerson more than a year ago. His responsibilities include training S.C.S. personnel and furnishing them with informational materials, giving direct assistance in the planning and application of conservation practices on areas where wildlife is an important consideration, and serving as liaison officer between the S.C.S. and other agencies interested in wildlife.

Dugan received his B.S. in Agriculture at the University of Illinois in 1938 and earned the B.S. in Forestry (B.S.F.) and M.F. (in wildlife management) degrees from the University of Michigan in 1941. He served as extension specialist in wildlife management at the University of West Virginia from 1942 through 1957, and joined the S.C.S. in 1957 as biologist at New Brunswick, N. J.

Ikes in Action

An idea of just how much good the Virginia Division of the Izaak Walton League is doing for wildlife in the state is shown in these March chapter reports: Charlottesville distributed over 21,000 pounds of bird feed in two weeks; Fredericksburg's wildlife feed patch programs are now under way; Front Royal is carrying out a bird feeding program (they now have a chestnut orchard and have planted an additional 200 chestnut trees); Gretna is again stocking $1,000.00 worth of game birds (this money from the surplus dog tag money of the county); $200.00 worth of rabbits are also being stocked; Loudoun County is conducting a bird feeding program, is sponsoring a bird box building contest, and is assisting the Boy Scouts in their program of planting 1,000 trees; Manassas' wildlife food planting program is under way; Norfolk members assisted game wardens in locating duck traps; and Suffolk promoted the essay contest and created interest in the teachers' conservation workshops.



Tidewater Fishing Reefs

The Virginia Wildlife Federation reported to the Sport Fishing Institute that the Tidewater Artificial Reef Development Association recently dumped its first barge load of car bodies on a selected site twelve miles off Cape Henry. The load of 80 bodies, strung on old cables, formed the north-east quarter of a circle one mile in diameter.

The next load will be dumped near Thimble Shoals Lighthouse, east of Buckroe Beach and north of Ocean View. Given sufficient funds this reef, to consist of 300 bodies, will be completed next spring.

Old automobile bodies can be bought for five dollars each or donated. Broken concrete sewer pipe and septic tanks can be had for the cost of hauling. The use of a big barge has been donated.

Other expense is defrayed by individual donations of five dollars or more. Association membership and decals for car or boat are provided.

Fifteen Convicted for Improper Hunting Licenses in Fauquier County

Fifteen court cases involving persons who purchased improper hunting licenses last season were heard by Judge

Marriott of Warrenton in Fauquier County Court on March 24. The result was 15 convictions, with attending fines, court costs and the purchase of a proper license by each hunter.

As part of a statewide crackdown on improper license purchasers, including those who purchase improper licenses for others, state game wardens Gene Altman and Gordon Wilkes brought to trial six Virginia residents who were not residents of Fauquier County but who had purchased county licenses in that county, two nonresidents who had hunted on Virginia state resident licenses, and seven state nonresidents who had claimed to be eligible for one-dollar Fauquier County licenses.

In these cases alone, the Virginia game commission had lost $157.25 in revenue. State Game Warden Supervisor Stuart Purks estimated that the total loss in the county was probably close to $1,000.00.

Nonresidents from Florida, Pennsylvania, Maryland, Connecticut, and New York have already been found to be involved in the license fraud, and the lure of the cheaper county license has also successfully tempted many Virginia residents to violate the law, Purks said.

Investigations to date indicate that a minimum of five percent of all license buyers may be involved in the fraud that is costing Virginia sportsmen over $200,000 each year.

State game wardens are determined to stop this loss of revenue, and hunters and fishermen who insist upon being among the law-violating five percent can expect to be contacted soon, supervisor Purks concluded.

Game Commission Marks Milestone at Game Farm

A milestone in the history of the Commission was reached in April when its Cumberland Game Farm released for distribution the last bobwhite quail and wild turkeys left at the farm to devote its facilities exclusively to the propagation of experimental exotic species.

In so doing, the commission turned from a 40-year-old program of raising and releasing native game birds to a new game farm approach based on the proposition that, whereas our native species are now abundant enough to spread out into most of the suitable habitat available, foreign game birds from areas with a climate similar to Virginia's may find themselves at home in parts of the state now unsuitable for bobwhite, turkey, or grouse.

Nature's Pedagogue

If I were to teach this boy with me
The story of Nature and its mystery
I'd sit on the end of a log with him
And show him the talents of Kipling's
Kim.

I would shy away from classroom din
And seek the spot where mists blow
thin.
We'd hie to the marsh and shore and
plain
And shout at thunder and laugh at rain.

We'd not dwell on forests or zones
But simply on life and color and tones;
For in these parts he could learn the
whole
And need not worry 'bout complexity
cold.

I'd show him the snake, and respect—
not fear
And teach him strength and an ear
to hear.
I'd teach him of soils and fish and trees
And open new doors to explore if he
please.

In our school of the out-of-doors
We'd spill no ink on oily floors,
And learning together we'd breathe
no chalk
Nor doze in boredom to monotone talk.

I'd walk and joke and hunt with him
And listen and search 'til day grew dim,
And then we'd watch the campfire glow
And sleep to bird calls and river flow.

If I were to teach this boy with me
The story of Nature and its mystery
I'd sit on the end of a log with him
Putting meaning to the talents of
Kipling's Kim.

—Robert H. Giles, Jr.

Just as Virginia was the first state to raise bobwhite quail for restocking (at Windsor Shades in 1920), it is now assuming a leading role in the new cooperative foreign game introduction program. Under this program, the commission has agreed to propagate and release in suitable areas foreign game species located, trapped, and shipped here by the U. S. Fish and Wildlife Service.

The first releases under this program took place in September 1958, when 600 pheasants—crosses between Iranian blacknecks and Imperial Valley ringnecks—were liberated in Charles City, Surry and Halifax counties. Since then, hundreds more have been raised and given their freedom in these and several other Tidewater and Piedmont counties.

The results of these releases have, to date, been most encouraging. As recently as March 29, biologist Herman J. Tuttle, in charge of the field end of the program, observed 83 pheasants in Charles City County during a six-hour census, and noted that the cock birds were crowing and forming harems.

On March 18, the commission received via air express from India 29 young and 48 adult black francolins, attractive game birds about twice the size of bobwhites and native to northern India. Because they are difficult to raise in captivity, the adult birds were released immediately on Hog Island in Surry County, while the young birds were taken by game farm supervisor Dennis Hart to Cumberland for propagation.

In April, a total of 450 western Iranian blackneck-ringneck cross pheasants were released in Charles City and Prince George counties and on Camp Pickett and Buckingham-Appomattox State Forest, 325 eastern Iranian blackneck-ringneck cross pheasants went to Halifax and Campbell counties, and 370 so-called "talischensis back cross" Iranian pheasants were freed in Richmond County.

In addition, approximately 500 bobwhite went to counties in western Virginia hardest hit by this winter's snowstorms, and some 800 turkeys were distributed statewide.

Releases next fall are expected to include the pure strains of both eastern and western Iranian pheasants (in southside Virginia), Japanese green pheasants (in southeastern Virginia), Reeves pheasants (in southwestern Virginia), and the "persicus back cross" Iranian pheasants (in the northern Piedmont).

HENRICO COUNTY SCHOOL BUILDS WILDLIFE AREA

Commission Photos by Harrison

At left, Henrico County Game Worden J. J. Westbrook ond Boker Elementary School Principol Henry D. Ward steady the ladder os eight-yeor-old Corl Jones nails the nesting box he constructed to a tree in the schoolyord. At right, second grader Carl is shown tocking his name plote to the tree.

George Baker Elementary Works for Wildlife

A wildlife area with picnic tables and a wildlife trail is under construction at the George F. Baker Elementary School in Henrico County.

Last year, the students and faculty of Baker School asked the Henrico County maintenance men to clear the brush in the wooded area behind their newly-constructed school. With this completed, the children of the school started to build bird houses.

The Parent-Teachers Association of the school donated funds for four picnic tables with benches and two grills.

By the end of the 1959 school year, 13 bird houses had been erected in the wildlife area.

This year, Mr. Henry D. Ward, principal of Baker Elementary School, said that squirrel boxes and feeders were being built by students to be placed in wooded area.

Mr. Ward hopes to have the border of the woods plowed and planted to the special wildlife food mixture prepared by the Commission of Game and Inland Fisheries.

The next project in the wildlife area will be a trail for the use of teachers and pupils during their recess periods. Mr. Ward hopes to have the trail deep enough in the woods so that it is not in sight of the school. He said that this will give everyone the feeling of being away from the school.

Each time a student constructs a bird or squirrel box, he or she erects it and tacks a small metal plate to the tree bearing his name, grade, teacher, and date. Mr. Ward is able to get these metal plates from a local sporting goods store for 35 cents each.

The George F. Baker Elementary School is a fine example for other schools in Virginia. With a little interest and effort on the part of the principal and teachers, young Virginians can acquire a lasting interest in wildlife and the outdoors.

Surry County Plants Food Patches

Each spring for the past 10 years, Surry County Game Warden Charles Hunter has spoken to the eighth grade members of Future Farmers of America at Surry High School. Hunter explains the benefits and importance of wildlife food patches and how easy it is to plant them. He follows his talk with a demonstration.

This year Game Warden Hunter met with the FFA boys on April 8 and conducted an actual planting demonstration on the A. P. Chappel farm on April 26.

The FFA members in the other grades have already received instruction from Mr. Hunter in previous years and are continuing to plant food patches.

Mr. Hunter said that between 20 and 25 boys are participating in the food patch program this year in his county. Those who complete their projects will receive credit for their work in their vo-ag classes taught by Mr. Ernest Wrenn at Surry High School.

Camp Counselors Meet in Charles City County

The Virginia Section of the American Camping Association sponsored a Camp Counselors Institute at Camp Richmond in Charles City County in late March this year.

The three-day event was attended by 48 camp counselors, future counselors, and camp directors from the Boy Scouts, Girl Scouts, YMCA, YWCA, church camps and other organizations.

Miss Virginia Denn from Girl Scout Headquarters in Richmond was the chairman of the institute.

Game Commission Wildlife Education Specialist George H. Harvey conducted a class on wildlife conservation and suggested many wildlife projects for counselor use in camp work.

Now nearing completion and already stocked with catchable-sized game fish, Lake Nelson will be the fifteenth lake opened to public fishing by the game commission. Three-fourths of its total cost of $62,000 was paid for with Dingell-Johnson federal aid funds.

Lake Nelson To Be Opened To Public This Month

Text and Photos by George H. Harrison

Snuggled at the base of the Blue Ridge Mountains in Nelson County, sparkling new Lake Nelson will soon provide 45 acres of fun-packed fishing. Slated to be opened to the public in late June or early July, Lake Nelson has been stocked with largemouth bass, bluegill bream, and redear sunfish. According to Gay W. Buller, chief of the Commission's fish division, bass up to six pounds were included in those stocked in the newly-constructed lake. Located east of Arrington and north of Route 655, the lake was begun in June of 1959 and is being completed this spring. The lake is tentatively scheduled to be opened on June 20.

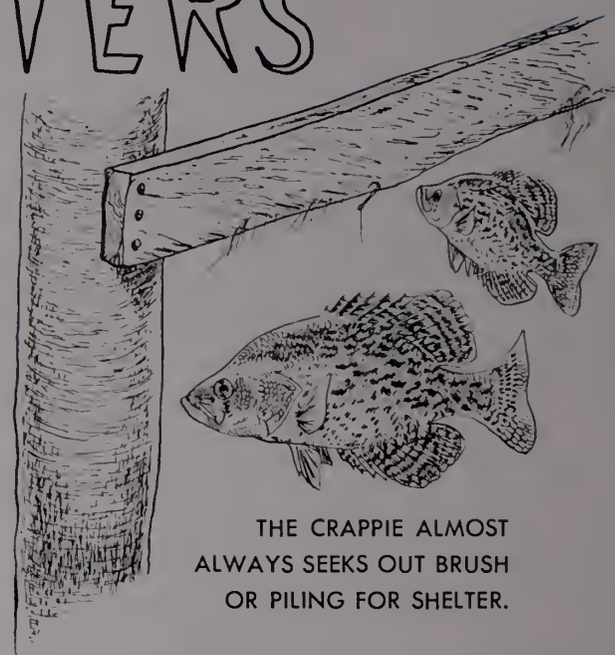
This sturdy dike will hold back the waters of Bob's Creek and make a 45-acre public fishing lake.

A sub-impoundment below the main dike will be used to hold game fish when the lake is drained and renovated.

The land now under water and that surrounding the lake was donated to the Commission by Ashby Lincoln, Jr. of Arrington, who has been granted permission to rent boats and sell refreshments at the lake. The lake is just 30 miles from Lynchburg via U. S. route 29.

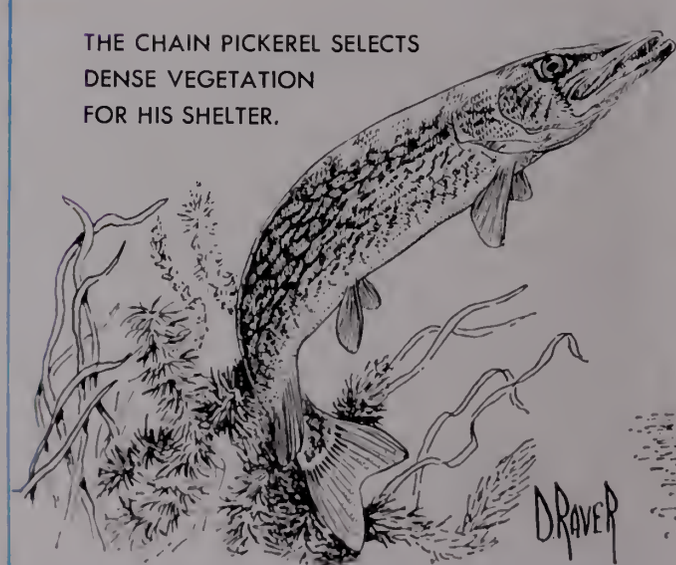
FISH SHELTERS

ALTHOUGH THEY DO VERY WELL WITHOUT THEM, LARGEMOUTH BASS LIKE SUNKEN TREES OR WEED BEDS FOR THEIR HOMES.

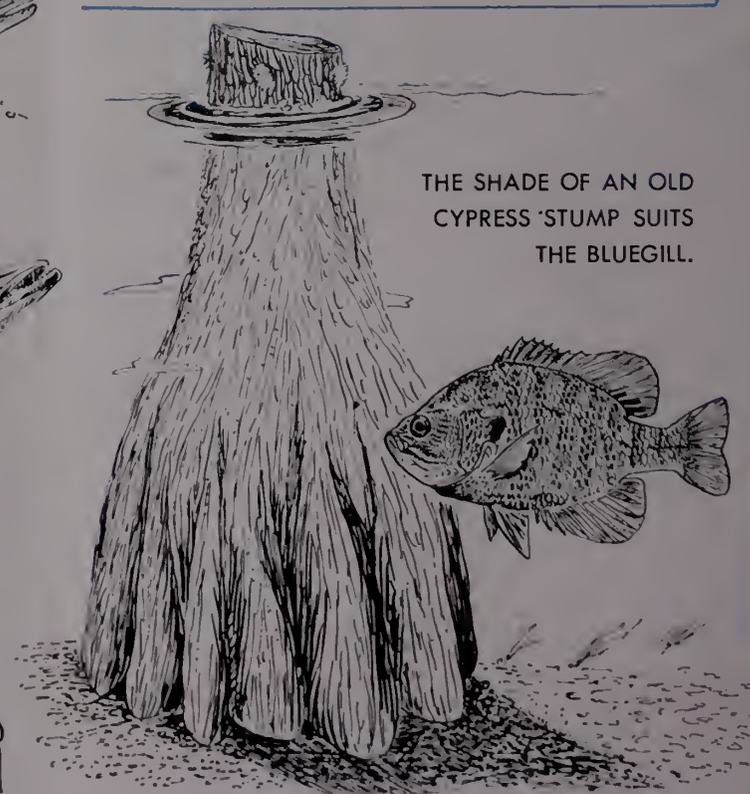


THE CRAPPIE ALMOST ALWAYS SEEKS OUT BRUSH OR PILING FOR SHELTER.

DEEP-POOL HOMES OFTEN CAN BE BUILT FOR TROUT — LIKE THESE RAINBOWS. BE SURE THE STRUCTURES ARE PROPERLY PLACED.



THE CHAIN PICKEREL SELECTS DENSE VEGETATION FOR HIS SHELTER.



THE SHADE OF AN OLD CYPRESS STUMP SUITS THE BLUEGILL.